COMPUTER GAMING WORLD

VOL. 3 NO. 5

OCTOBER 1983

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Vol. 3 No. 5 **October 1983**

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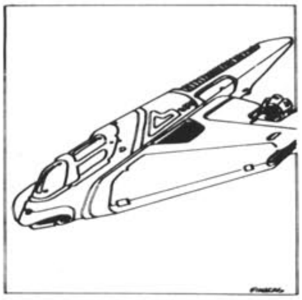
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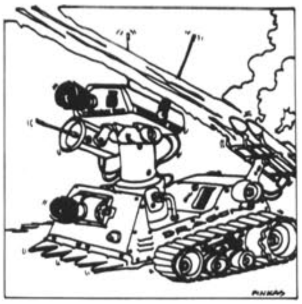
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FEATURES

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Game Playing Aids from Computer Gaming World

COSMIC BALANCE SHIPYARD DISK

Contains over 20 ships that competed in the CGW COSMIC BALANCE SHIP DESIGN CONTEST. Included are *Avenger*, the tournament winner; *Blaze*, *Mongoose*, and *MKVP6*, the judge's ships. These ships are ideal for the gamer who cannot find enough competition or wants to study the ship designs of other gamers around the country. SSI's The Cosmic Balance is required to use the shipyard disk. PLEASE SPECIFY APPLE OR ATARI VERSION WHEN ORDERING. $15.00

ROBOTWAR TOURNAMENT DISK

CGW's Robotwar Diskette contains the source code for the entrants to the Second Annual CGW Robotwar Tournament (with the exception of NordenB) including the winner, DRAGON. Also included is the winner of the First Annual Tournament, NORDEN+. Twelve robots in all. Muse Software's ROBOTWAR™ required to use tournament disk. $12.00.

CGW BASEBALL DISK

Contains the four teams of the All Star League reported on in 3.3 (AL West All Stars, Al East, NL West, and NL East); the six teams of the 1982 Winter League (see 3.3), the eight teams of the Greatest Baseball Team of All Time Tournament, and a reprint of the results of The GBTOAT tournament from issue 2.3. SSI's Computer Baseball Apple version required to use data disk. Apple version only. $12.00.

Send check or money order to: Computer Gaming World, Disk Order Dept., P.O. Box 4566, Anaheim, CA 92803-4566. California residents please add 6% sales tax. Allow 3-4 weeks for delivery.

BACK ISSUES ARE AVAILABLE

Send $2.75 plus $1.00 postage and handling per copy

2.3 — Wizardry; Tactics in Eastern Front; Time Zone Interview; Voyager I; West Coast Computer Faire Photos; Long Distance Gaming; Jabbertalky; Baseball Tournament Results; Olympic Decathlon; Lunar Lander (TRS-80); Swashbuckler; Silicon Cerebrum; Atari Arcade; Writing For CGW; and more!

2.4 — Warp Factor; Rendezvous; Economic Simulations for the Apple; Controller; Graf Spee; Starship Commander; Captain 80 Adventure Book; Horse Racing Classic; Knight of Diamonds; Dnieper River Line; Choplifter!; Casino; and more!

2.5 — Labrinthine (fiction); Software Piracy; Starblazer; Galactic Gladiators Review and Scenario; Atari—Exploring the Human Connection; Guadalcanal Campaign; Robot Tournament; The Road to Gettysburg; Cytron Masters; Starship Commander Notes; Invasion Orion; and more!

2.6 — History of a Wargame Design; Japanese Strategy in Guadalcanal Campaign; Four For The Atari; Eastern Front Scenarios; Star Maze; Legionnaire; Cytron Masters Upgrade; Apple to Atari; Andromeda Conquest; Torpedo Fire Scenarios; Beyond Sargon II; and more!

3.1 — Test Pilot (fiction); Serpentine; Cosmic Balance; S.E.U.I.S.; Armor Assault; The Arcade Machine; The Atari Arena; The Learning Game; INDEX; and more!

3.2 — Computer Games in 1983; Cosmic Balance Tactics and Ship Design; Zork! Overview; Ultima II; Millionaire; Robotwar Tournament Results; Mockingboard Sound Board; Epidemic; Game Ratings; and more!

3.3 — Close Assault; Computer Ambush; Adventure Game Contest; Pinball Construction Set; Germany 1985; Galactic Attack; Two Computer Baseball Leagues; Chess 7.0; 100 games rated; and more!

3.4 — Suspended; M.U.L.E.; Battle for Normandy Strategy; Serpent's Star Hints; Cosmic Balance Contest Results; Knights of the Desert; Galactic Adventures; Computer Golf!; Bomb Alley; Game Ratings; and more!



INSIDE THE INDUSTRY

by Dana Lombardy

Last issue, we surveyed the readers of *CGW* on how you buy software and on what types of software you spend your money. The results of that survey will be reported in this column next issue.

This time, we'd like to find out what other types of games you've played — or are now playing — besides the home-computer type.

Most of you are probably familiar with role-playing games and wargames; not the ones you see on your monitor, the ones that are played on boards or with miniatures. Many of the manufacturers of such games are very sensitive to what they believe are "lost" gamers — *you* who now play computer games. There are, of course, some opposing views on this subject. The opinions most often expressed are:

1. A large number of people who had played role-games and wargames got into computer games and then stopped buying and playing non-computer games.
2. The above statement is only partially true. Some computer gamers still play other types of games, as well as computer games.
3. Statement number 1 above is only temporarily true. Computer gamers stopped playing other types of games for a while but now play these other games again, as well as computer games.
4. A number of computer gamers never played other types of games a lot before they got into computer gaming. Computer games, in fact, have gotten them interested in and involved in playing these other types of games, as well as computer games.

Which statement most closely reflects your experience as a computer gamer? Here's your chance to tell us the types of games, other than computer, that you have played or are currently playing. Please answer the questions below, using the Reader Input Device at the back of this issue.

Part I (Question 1)

Mark the *one* statement below (*A, B, C,* or *D*) that best describes your gaming background.

A. *I didn't play any other games regularly* (at least 3 to 4 times a month) before I got into computer games, and I still don't play anything except computer games.

B. I didn't play any other types of games *regularly* before I got into computer games, but now I play other types of games fairly regularly (as well as computer games).

C. I played other types of games regularly, and still play these other games regularly, as well as play computer games.

D. I used to play other types of games regularly, but now I play *only* computer games regularly.

Part II (Questions 2 through 6)

If you checked either statement *"B"* or *"C"* in Part I above, check *one or more* of the types of games below that you now play *regularly* (other than computer games). If you checked either statement *"C"* or *"D"* above, please go to Part III below.

2. Role-Playing Games (such as *Dungeons & Dragons*,® *Traveller*,® etc.)
3. Wargames (such as *Squad Leader, Ogre, Ace of Aces*,® etc.)
4. Miniatures Wargames (using micro-tanks, 15mm, 25mm, or other scale model soldiers)
5. Abstract Strategy Games (such as chess, go, backgammon, *Pente*,® *Trivial Pursuit*, etc.)
6. Coin-operated Arcade Games (such as *Pac Man, Frogger*, etc.)

Part III (Questions 7 through 11)

If you checked either statement "C" or "D" in Part I above, check *one or more* of the types of games below that you played *regularly* before you got into computer games.

7. Role-Playing Games
8. Wargames
9. Miniatures Wargames
10. Abstract Strategy Games
11. Coin-operated Arcade Games

Thanks for taking the time to tell us about your gaming interests. The results of this mini-survey will be published in a future column.

Use R.I.D. in the back of this issue to respond to questions on this page.

HOBBY & INDUSTRY NEWS

Michael Berlyn, Project Manager at Infocom, reports that all seven Infocom products are now compatible with 13 different microcomputers. Following is an up-to-date list of available formats: APPLE II; ATARI; COMMODORE 64; CP/M; DEC RT-11; DEC RAINBOW; IBM PC; NEC PC-8000; NEC APC; TRS-80 MOD I; TRS-80 MOD III; TI PROFESSIONAL; and the OSBORNE 1.

Infocom, Inc., has also announced the fall release of INFIDEL, the first game in the new Infocom Tales of Adventure Series. Set in the vast Egyptian desert somewhere near the banks of the Nile River, INFIDEL challenges you to find the buried entrance to the last great pyramid and, once inside, seize priceless treasures that have remained hidden for thousands of years.

It is the second prose adventure written for Infocom by Michael Berlyn, author of Suspended. Berlyn says the Tales of Adventure genre offers players a modern-day journey into the chronicles of history. "A tremendous amount of research went into this product," Berlyn says, adding, "We have incorporated detail that presents players with an incredibly realistic environment." Berlyn was assisted on the project by Patricia Fogleman, a graduate student at Harvard University who was especially involved with the research on pyramids.

REACH FOR THE STARS, from Strategic Studies Group Pty. Ltd. of Sydney, Australia, has announced that the C-64 version of their game will be available by the end of September and will sell for $AUS45, or approximately $US40.

THORN EMI Video will release COMPUTER WAR, a home computer game based on the movie, "WAR GAMES". COMPUTER WAR will be compatible with the Atari 400/800/1200; the Vic-20; the TI 99/44 and certain other home computers. The game will be available September 15 and sell for $39.95.

The AIRPORT Air Traffic Controller game is now available from the Software Toolworks in a version configurable for most CP/M computer systems. AIRPORT can be configured for most 80 column, 24 line displays with cursor addressing, and uses character graphics if available. It comes in 8" CP/M format, and 5" formats for DEC, Kaypro, Osborne (80 line or Executive), Xerox, and Heath/Zenith computers. Suggested price is $19.95 and may also be gotten from The Software Toolworks, 15233 Ventura Blvd., Suite 1118, Sherman Oaks, CA, 91403.

Activision, Inc. has announced the release of two of its best selling games for the ATARI line of home computers. RIVER RAID and KABOOM!, both of which have sold more than one million units in their original designs for the Atari 2600, will be available at retail in October and will carry a retail price of $34.95.

Commodore International Limited announced record revenues, net income and earnings per share for the fourth quarter and year ended June 30, 1983. Mr. Irving Gould, Chairman of the Board of Commodore, in commenting upon the record results noted that "the past year's growth at Commodore was attributable to continuing and acceleration strength in Commodore's complete microcomputer line, including extremely strong demand for the C-64 personal computer."

MSA (Management Science America, Inc.) announced the acquisition of EDU-WARE SERVICES, INC. of Agoura Hills, CA. Edu-Ware is a leading supplier of educational microcomputer software for school and home use. MSA acquired all of the outstanding stock of Edu-Ware in exchange for a combination of MSA stock and cash of approximately $1,500,000 and some deferred payments based on future revenues and profits of Edu-Ware.

TG SOFTWARE has been announced as a new division of TG Products to develop and market programs for Atari-compatible computers. The parent company, TG Products, has been manufacturing joysticks, trackballs and game paddles for personal computers for three years. TG Software released four games at the Summer Consumer Electronics Show on cartridge for the Atari 400/800/1200XL computers. the games include DROIDS, NIGHTSTRIKE, OZZY'S ORCHARD and ABRACADABRA and will sell for $44.95.

Insoft has LOWERED PRICES on its Apple Arcade game series. The suggested retail price of Grapple, Spider Raid and ZARGS— all written in GraFORTH—is now only $19.95.

Thom Keith, Director of International Network Affairs, THE GAMES NETWORK, INC., that agreement has been reached in principle with W. H. SMITH & SON, LTD., a London-based publisher/retail chain/news distributor, that W. H. Smith will be the exclusive distributor of The Games Network technology and programming to CATV systems throughout the United Kingdom.

Synapse Software, the first company to introduce successfully three-dimensional graphics to home computer games, staged a real-life dramatization of its BLUE MAX World War I aerial combat game at a press premiere on Wednesday, August 24 at

Continued on p. 12

Taking a peek

In addition to games mentioned elsewhere in this issue, the following products have been received by CGW. Some of these products will receive more detailed attention in future issues. Readers wishing to review any of these games should contact CGW.

Avalon Hill Game Co. (Microcomputer Games)
4517 Harford Rd.
Baltimore, MD 21214

S.C.I.M.M.A.R.S.: Game of "gladiatorial armored combat in the far future" using small armored ground cars. One could call this a high speed version of "Battlezone". Nine levels of difficulty. Higher levels increase enemy armor and/or decrease your armor. Apple II. $26.00.

PARTHIAN KINGS: Strategy game with a fantasy setting. Terrain and units are designed by the players. Up to four can play (the computer can play up to three positions). Multiple play options good graphics and artificial intelligence make this an enjoyable game that will be played over and over. Apple II. $25.00.

Avant-Garde Creations
P.O Box 30160
Eugene, OR 97403

TROMPERS: A whimsical arcade game in which you, in control of the local dog catcher, try to catch TROMPERS (little bouncing space critters). The first two levels are almost preschool in terms of difficulty but levels 3-5 (which include 'people holes' that must be jumped over) are a good deal more challenging. In concept the game is a bit like the Atari VCS game KA-BOOM. However, TROMPERS goes beyond Ka-Boom. Apple. $29.95.

Broderbund Software
1938 Fourth St.
San Rafael, CA 94901

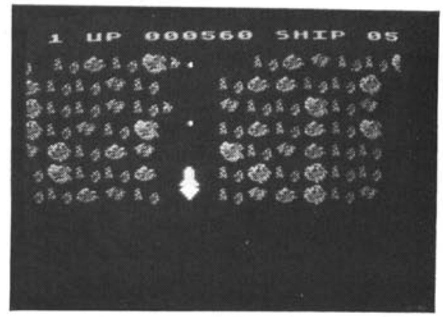
OPERATION WHIRLWIND: Broderbund's first wargame. OW is a strategy game (tactical level) for the Atari based on WWII. As Battalion Commander you order your companies, platoons, and batteries in an assault on an enemy town. Graphics are reminiscent of Eastern Front (EF) but movement/combat is different. In EF you issue orders to all units then the units move simultaneously during an execution phase. In OW you move each unit individually. The phases are Command, Movement, Combat, Assault Order, Assault. The game can be saved. Handsome Battle Map poster included in the slick SSI sized package. Look for upcoming review. $39.95.

Datasoft
9421 Winnetka Ave.
Chatsworth, CA 91311

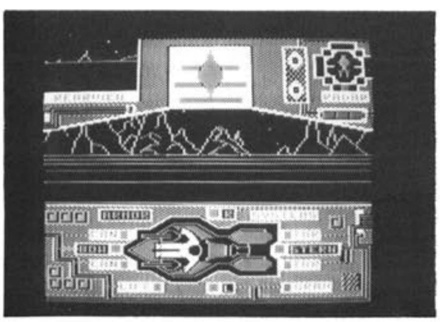
MOON SHUTTLE: Nice graphics are featured in this "space invaders" type arcade game. Each "wave" of descending aliens is preceded by an asteroid sequence in which the ship must blast it's way through an asteroid belt. The Atari version includes cassette and disk in the same box. Also available for the Radio Shack Color Computer, Apple, and C-64. $29.95.

O'RILEY'S MINE: Your task is to mine for gold, rubies, diamonds, etc. as you attempt to stay ahead of rising waters and river monsters. Your task involves not only staying ahead of danger but digging paths that do not take you into further danger. Often tunnels previously dug fill up with water, therefore you should dig tunnels in such a way that the need to cross previously dug shafts is minimized. Atari. $29.95.

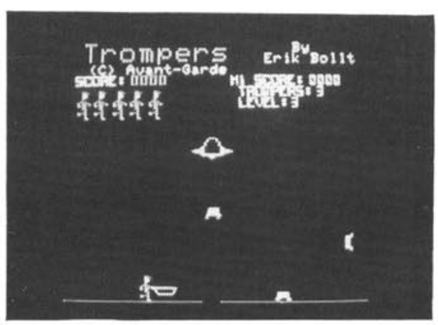
ZAXXON: The Apple version of the popular arcade game. When used in conjunction with the MOCKINGBOARD is compares very favorably with the Atari 400/800 version (also by Datasoft). $39.95.



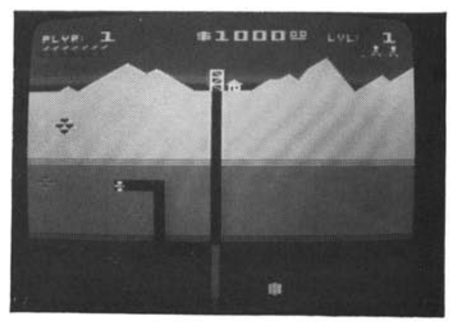
Moon Shuttle



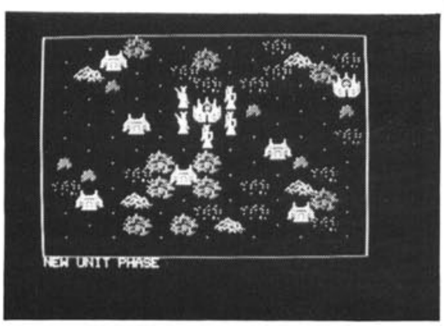
S.C.I.M.M.A.R.S



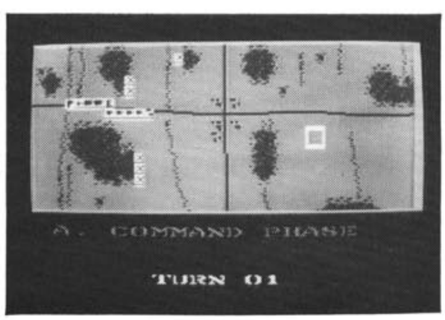
Trompers



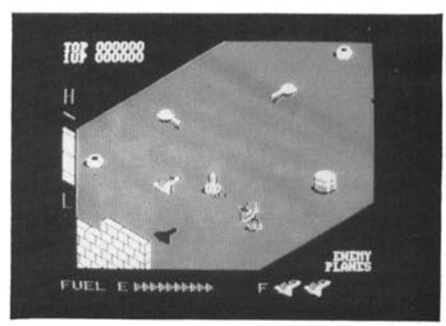
O'Riley's Mine



Parthian Kings



Operation Whirlwind



Zaxxon

Dataworks
P.O. Box 236
Deep River, CT 06417

TANK PLATOON!: A tactical wargame in which each player chooses and controls ten units (tanks, personnel carriers, infantry, leaders). Players see the battle from the viewpoint of the unit currently being ordered. In addition to the hi-res views available to each unit, the leader can look at a low-res map. Apple II. $29.95.

Discovery Games
936 W. Highway 36
St. Paul, MN 55113

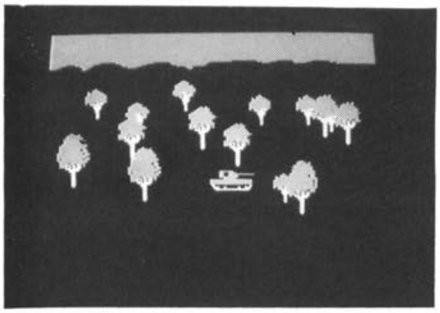
FLYING TIGERS: An interesting looking game of air combat in which you can fly any of eighteen Allied fighter types against the fighters and bombers of the Japanese Empire (1937-1942). In Operational Mode you see a "side view" that covers several miles. Your plane starts on the Operational map somewhere between the enemy and the target city of the Japanese bombers. Once close enough to the enemy you enter a tactical mode in which you fight a hi-res arcade style plane-to-plane dogfight. Review coming. Apple II.

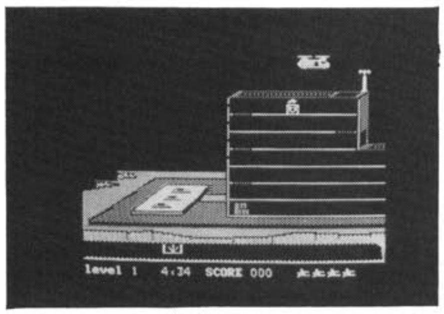
LAFAYETTE ESCADRILLE: A TRS-80 game of "real time animated action" WWI air combat. You choose your plane from the 24 types available (French, English, German). Missions include Offensive Patrol, Defensive Patrol, Long Range Patrol, Bombing Mission, Balloon Busting, and Training Flight. Review coming.

Infocom, Inc.
55 Wheeler St.
Cambridge, MA 02138

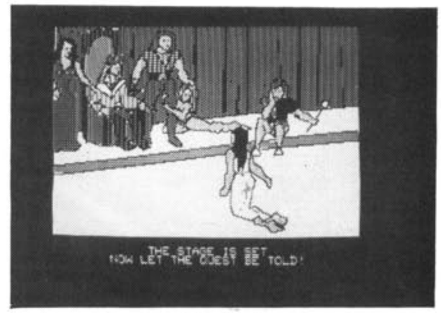
PLANETFALL: An interactive space comedy game. You, as Ensign 7th Class in charge of janitorial work, are thrust into adventure when you are shipwrecked on a doomed and plague-stricken planet. A mischievous robot named Floyd (you'll grow to love him) assists you in your attempt to save the planet. Available for many machines. $49.95 (some versions $59.95).

WITNESS: An interactive personal computer game whose situations, personalities, settings, and packaging reflect the classic whodunits of the 1930's. As with all Infocom games, numerous game playing aids are included (such as The "Nat'l Detective Gazette", a copy of a newspaper from the time of the murder, suicide note, etc.). Multiple systems. $49.95 (some $59.95).

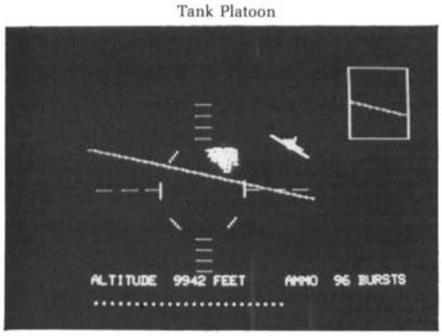

Tank Platoon



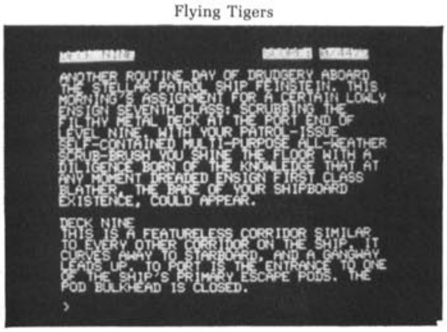
Minit Man



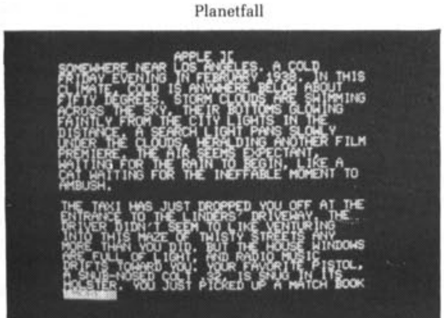
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Jay Gee Programming Company
7185 Blue Hill Dr.
San Jose, CA 95129

DEVIL'S DARE: A computerized board game in which players race against time to get five tokens in a row before the computer does. It can be played by one to four players. Twelve board sizes and three skill levels. Difficult to play if you do not have the GTIA chip. Atari. $19.95.

Penguin Software
830 4th Ave.
Geneva, IL 60134

MINIT MAN: An arcade game in which you perform several functions all leading to the launching of your missiles against invading robots. Three screens are required to display the minit man launch facilities. You must repair the bridge (so the train can bring the missiles to the site), stop infiltrating robots, and set the launch computer. Apple. $19.95.

THE QUEST: A graphic adventure game in which you kill a vengeful dragon. 200 locations, full sentence parser. There are many ways to arrive at the solution in this adventure thus it can be played several times, each time taking a different path to the solution. Two-sided disk. Apple. $19.95.

THE SPY STRIKES BACK: Their subtitle is "How to Not Be Seen". Our subtitle is "Son of Spy's Demise". You must find nine clues scattered on five floors (well, five floors is all your intelligence report reveals). The secret? Don't be seen. Apple and Atari. $19.95.

Sierra On-Line Inc.
Sierra On-Line Building
Coarsegold, CA 93614

SAMMY LIGHTFOOT: You control Sammy, a circus performer whose hair (or is it a wig) flys around when he falls. You must jump over objects, hang onto ropes, use trampolines, and ride elevators in your climb to stardom. Apple.

Strategic Simulations
883 Stierlin Rd. Bld. A-200
Mountain View, CA 94043

BROADSIDES: A detailed simulation of fighting sail. You can play it on an arcade level, which is easy and quick or you can opt for the tactical game in which you make detailed decisions such as type of shot. The boarding action sequence is nearly a separate game by itself. Only one ship per side (multi-ship game coming from SSI in the future). Ships can be constructed (statistics for a number of Napoleonic Era ships are included in the rule book). Review coming. Apple. $39.95.

EAGLES: Aerial combat in WWI. One to ten planes per side. An introductory level game which, while not as detailed as most SSI games, is enjoyable to play and gives the "feel" of WWI air combat. Seventeen plane types are provided but the program allows you to construct any airship you wish. The scenarios, mini-games and campaign game provide the gamut of situations a WWI pilot might find himself in. Review coming. Apple and Atari. $39.95.

GEOPOLITIQUE 1990: A solitaire game in which you play the roll of the President in the 1990's. You are in a power struggle with the Soviet Union (played by the computer). In the "peaceful" phase (GEOPOL) you produce goods which are offered to minor countries in exchange for alliances, agreements, and concessions. In the military phase (GEOWAR) you conduct conventional warfare. Apple. $39.95.

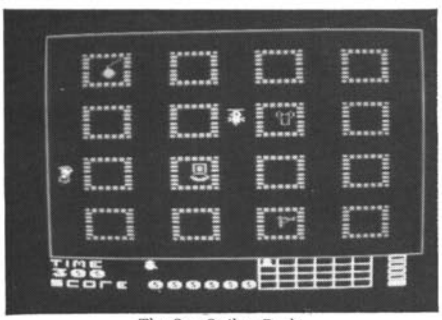
RINGSIDE SEAT: A game of championship boxing. A hi-res semi-animated screen brings to life boxing matchups between great fighters of the 20th century. You manage the fighters, giving them between-round instructions. Review coming. Apple and C-64. $39.95.

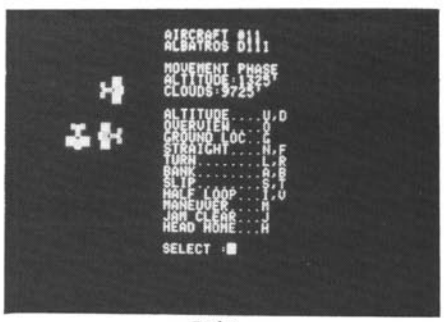
Lor Inc.
Rt. 2, Box 185
Rigby, ID 83442

OPHIR: In this cartridge arcade game, you, as Ophir, must free jewels from a series of ten progressively more complex spider webs. To prevent this, and hopefully destroy you, are spiders which multiply unless destroyed by you when young. Fast moving and tough to beat. C-64.

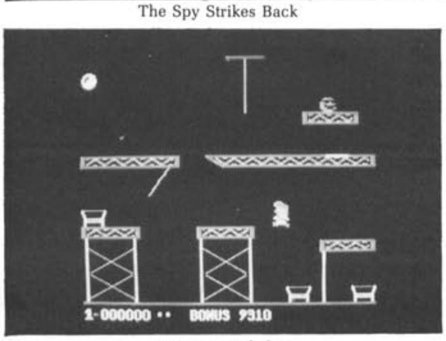
Sirius Software
10364 Rockingham Dr.
Sacramento, CA 95827

SNAKE BYTE: You must use all of your skill and planning ability to master all 21 rooms of this arcade game. In it, you guide your snake through progressively more cluttered rooms, eating the apples which appear while avoiding the randomly bouncing plums. Beware though, because with each apple eaten, your snake grows longer and moves faster. Apple, C-64, and Vic-20.

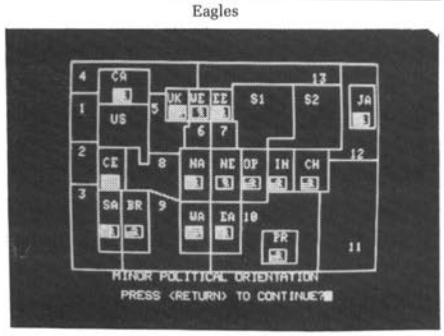

The Spy Strikes Back



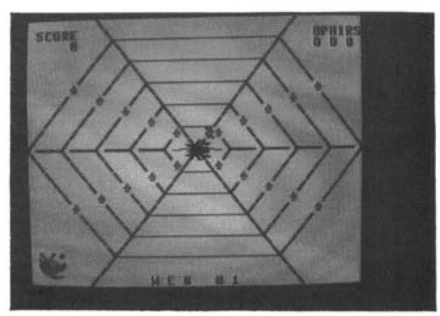
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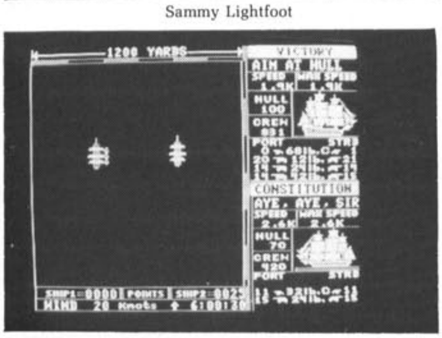


Sammy Lightfoot

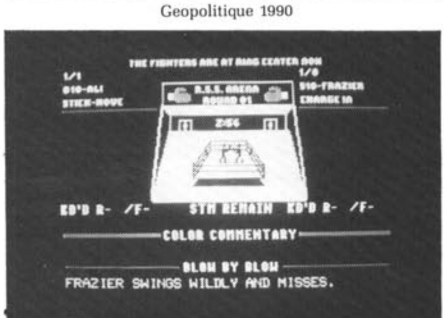


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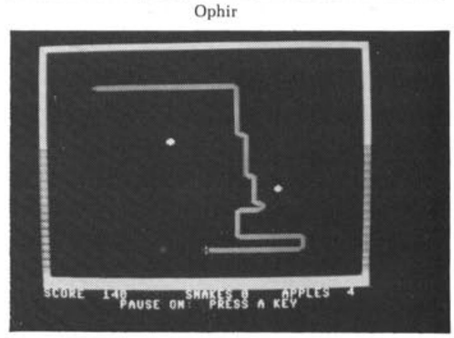

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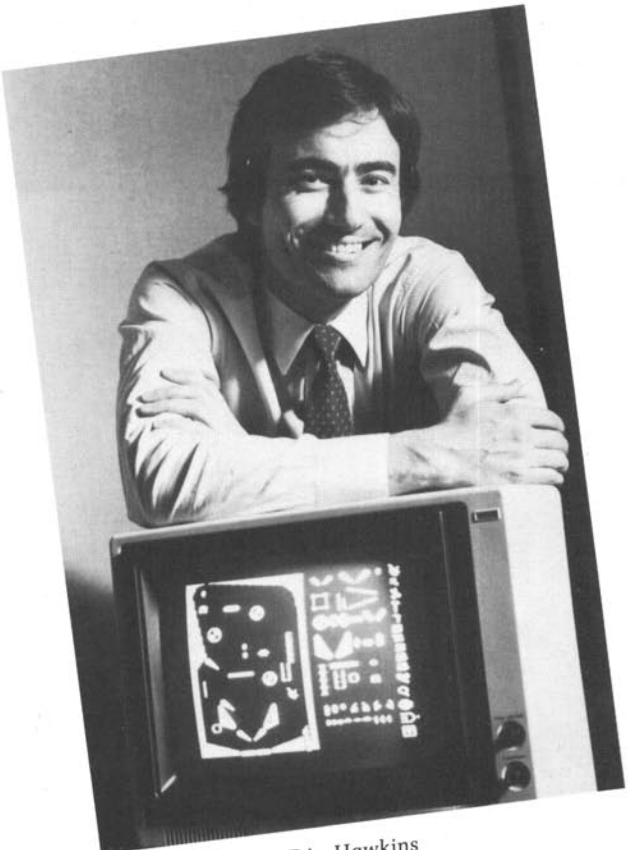
Broadsides



Ringside Seat



Snake Byte



Trip Hawkins

ELECTRONIC ARTS: Trip Hawkin's Dream Come True

David Long

The brightest new star on the computer software market is almost certainly Electronic Arts of San Mateo, California, a company expecting to have literally hundreds of titles on the market by the mid 80's.

Electronic Arts is attempting to jump into the forefront of the microcomputer software field as an immediate success, much as the goddess Minerva lept full grown from the brain of her father Zeus. This brainchild of 29-year old Trip Hawkins has bypassed the "test the waters" stage and made a total commitment to be one of the leaders in its industry, both in game development and in gaming systems development.

Trip Hawkins graduated with high honors from Harvard University with a specialization in "Strategy and Applied Game Theory" and in 1975 had the stated goal of starting a software games company before 1985. After receiving his MBA from Stanford, he joined Apple Computer early in its growth, and left the company in the Spring of 1982 after serving as the Director of Marketing for Apple's new LISA. One of a number of sharp young thinkers who walked away from Apple as millionaires Trip almost immediately began laying the foundations for Electronic Arts.

EA, says Trip, wants to do three specific things. First, they want to find and help develop new talent. One of their key concepts in this area is the strong publicity that they give to the authors of their games. Each game comes packaged in a heavy cardboard album about 9″ × 9″. Each is in full color glossy and gives an introduction to and a picture of the game creators. EA hopes that treating the author of a game as the artist that he or she is will encourage the growth of talent, and encourage creativity. In addition, EA provides a great deal of assistance in the production of a game, and hopes to be able to bring out the fine points of each new product. I'm sure many of us have played games that were enjoyable, but which could have been truly great games with only a little more work. From what I've seen of EA's new releases, they must know what they're doing in applying these finishing touches.

Secondly, EA wants to make a contribution to the development of software technology; to enable each prospective game designer to understand the machine and its capabilities. Moving a game from one machine to another, say from the Apple to the IBM, currently requires complete translation of the program which in many cases virtually amounts to starting over from scratch. One of the things which Trip wants to create is a process for making new games in which games are developed on a sort of *master machine*, which could then translate them directly into all the other varieties of computer much more efficiently.

Thirdly, they plan to use their unique marketing techniques to help retailers more easily sell the games. Again, I'm sure that many of us have looked at the package of a new game in frustration, not being able to tell much about it and unwilling to "buy a pig in a poke." EA's packages give a very good idea of what's inside thus encouraging the consumer to buy.

Trip says that one of the strong themes of his company is expressed by philosopher John Dewey's belief in the dynamic process of learning. We learn best, according to Dewey and Hawkins, by doing. If you try to acquire new ideas and skills while you are an active participant in the learning process, you will learn more, and faster. Further-

more, the wider the range of sensory experiences involved, the more meaningful will be the experience.

One of the first games produced by EA is *M.U.L.E.*, a financial simulation on another planet. This game, I firmly believe, could take a key position in the Economics class at any high school or college. The only problem would be in trying to get the students to stop playing! On the other hand, a group of elementary school kids could spend hours playing M.U.L.E. at its easiest level and never even suspect that they'd just acquired an excellent background in economics.

EA wants its games themselves to excell in three ways. First, the game must be simple. In other words, you should be able to get into the game fairly easily, and quickly, without having to study a 150-page rulebook intensely for three days prior to booting up. Second, the game should be hot, with lots of media action, good sound, good graphics, and should take full advantage of the capabilities of the machine. Third, it must be deep. As you play you should discover more and more — to have the game grow with you — so that after a month it is not another dust gatherer on the shelf under your computer.

EA enters into contracts with its authors much like a recording studio does with its musicians, and encourages them to think of software as an art form. The advantage of the computer in the game world is that it handles all the administrative detail. Instead of having to roll the dice repeatedly, the computer decides. Instead of having to attempt to determine whether or not your piece has line of sight to mine, the computer decides. This opens your mind to concentrate on the proper strategy and tactics for winning. To use Trip's example, a 13-year old kid would kill Attila the Hun in a simple round of Dungeons and Dragons, because poor Attila just wouldn't be able to handle the mechanics of the game.

The first generation of games from EA has six new releases and one translation. Bill Budge, now an Electronic Arts artist, has translated his *Pinball Construction Set* (see last issue's review) for the Atari. The six new games will all be reviewed separately; including the previously mentioned *M.U.L.E.*, which offers you the option of handicapping one or more players, has superb graphics, and as already stated, is an excellent economic simulation for any level of player.

Another new release is *Archon*, a fantasy board game with fast action arcade combat between opposing pieces occupying the same square. In this battle between the forces of dark and light, the central squares of the board fade from dark to light, with the relative strength of the pieces ebbing and flowing with the change of colors. A third release, *Worms?*, involves creating brightly colored trails of light which weave intricate patterns and compete for control of the dot matrix on the screen. Their fourth release for the Atari is *Murder on the Zinderneuf*, a real time murder mystery which could be the great-great-grandson of the old boardgame "Clue."

These four are available currently for the Atari, and had me pricing Atari's for two weeks after I saw them. For the Apple, there are currently two releases, *Hard Hat Mack*, and *Axis Assassin*. Mack is an arcade game in which you try to complete a construction project while avoiding vandals, OSHA inspectors, and a series of on the job hazards. Axis Assassin, and I have no idea where the name came from, is a fast action shoot-'em-up played on a series of geometric shapes and is reminiscient of the arcade game *Tempest*.

If this first generation of games is any indication of the quality and craftsmanship that Electronic Arts hopes to put into all of its releases, then we (the consumers) have just acquired a new hero. Trip promised that his company does not plan to discriminate according to make, creed, or model of computer but will offer releases for all the major systems (Apple, Atari, IBM, and Commodore). I, for one, am waiting with baited breath for *Archon* (soon) and *M.U.L.E.* (don't hold your breath) for the Apple. Another delight in the works on the Hill in San Mateo is a "dungeons and dragons" type of fantasy game called *The Standing Stones*. The maze graphics are very clean and fast, and with a promised September release time, it should be ready just in time for my birthday.

When these folks say they mean business, they aren't kidding. My bet is that this is one company which will rapidly chisel out a very comfortable block of the software market, and stay an industry leader for a long time to come. Now if they'd only have M.U.L.E. ready on the Apple for my birthday . . . ■

ADVENTURE GAME CONTEST

What is this? Deja Vu? Wasn't this the contest that was run in CGW 3.3?

Yes. It is true. Just in time for Halloween, the Adventure Game Contest has risen from the grave (ominous organ music in background — bats fly past your face). In CGW 3.3, we threw down our gage and challenged you to solve the puzzle. The gage proved to be mighty, for no one has solved all 23 puzzles. So here we are to challenge you again.

This time we will give free two year subscriptions to the top three contestants. The more complete your puzzle, the better your chance of winning. Send your submissions to: Computer Gaming World, Puzzle Contest, P.O. Box 4566, Anaheim, CA 92803-4566. Entries must be postmarked by December 31, 1983.

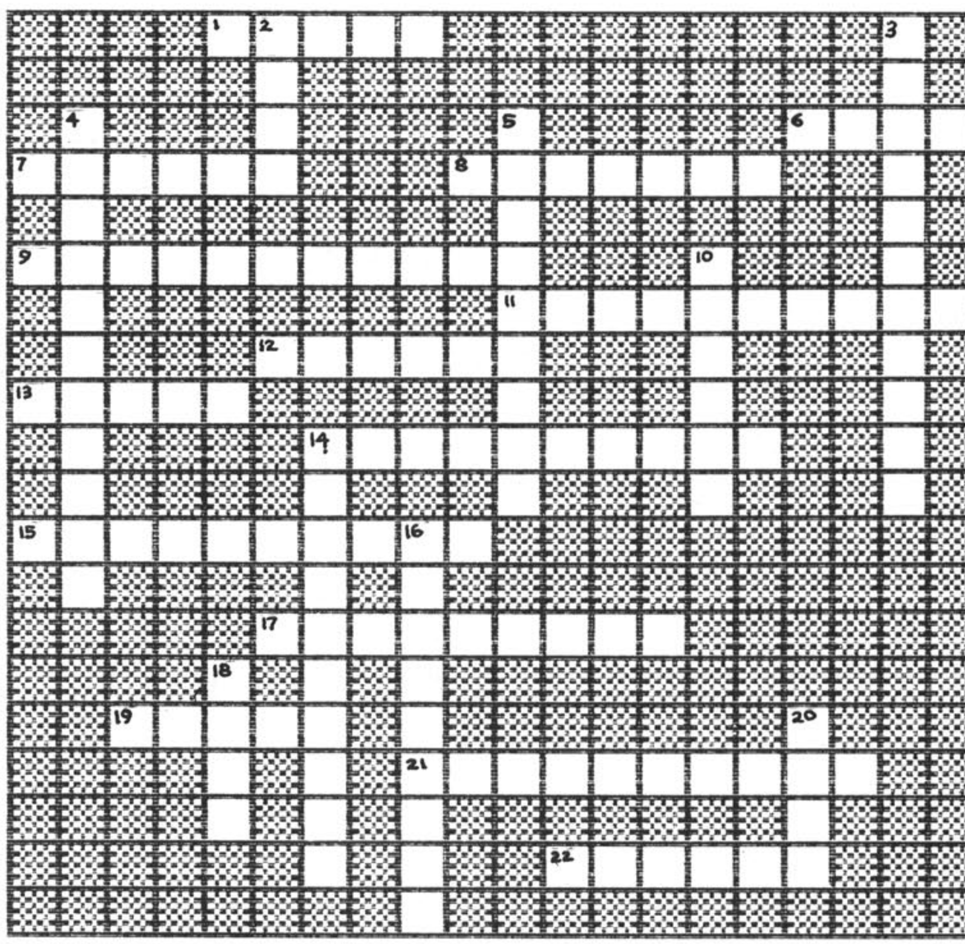
The crossword puzzle was created with CROSSWORD MAGIC from L&S Computerware. CM runs on the Apple II and retails for $49.95. L&S Computerware, P.O. Box 70738, Sunnyvale, CA 94086.

ACROSS CLUES

1. MYTH-KILLING FOR ROBIN HOOD IN "T IME ZONE"
6. PLUG-INS IN "ULTIMA I"
7. ULOCKING THE WAY TO ENLARGEMENT I N "MAD VENTURE"
8. FOREVER MADE IN "ZORK I"
9. TANKED-UP TREASURE IN "ZORK II"
11. HIT BY SIRIUS IN "MISSION ASTEROI D"
12. SNAKE REPELLANT IN "PIRATE'S ADVE NTURE"
13. WHO-DONE-IT IN "MYSTERY HOUSE"
14. LIFT IT OUT IN "CRANSTON MANOR"
15. FILED AWAY IN "THE COUNT"
17. "ULYSSES'" HARPY REPELLANT
19. SLIPPERY WAY TO GO DOWN A LEVEL I N "WIZARDRY"
21. HORNY WAY OF GOING DOWN A LEVEL I N "DEATHMAZE 5000"
22. SILENCER FOR WINDOW ALARMS IN "MI SSION IMPOSSIBLE"

DOWN CLUES

2. CONCEALED BODY PART IN "PYRAMID O F DOOM"
3. H.G. WELLS GETS THE JEWELS IN "ZO RK III"
4. "X" MARKS THE SPOT IN "ULTIMA II"
5. DAMMED TREASURE IN "ADVENTURELAND "
10. THE KEY TO ESCAPE IN "THE PRISONE R"
14. BOOMERANG TREASURE IN "ADVENTURE"
16. SHRIMP COCKTAIL IN "VOODOO CASTLE "
18. STRUNG-UP ITEM IN "SHERWOOD FORES T"
20. COLOR OF FELINE FEAST IN "WIZARD & THE PRINCESS"



INDUSTRY NEWS (Cont.)

Schellville Airport near Sonoma, CA. The event was designed to re-create the "barnstorming" atmosphere of a 1920's fairground picnic and air show. The day's highlights included mock dogfights and aerobatics by pilots in vintage biplanes, visitor air rides, on-the-ground demonstrations of the Blue Max game and press interviews with Synapse executives and the game's author, Bob Polin.

THORN EMI Video will release COMPUTER WAR, a home computer game based on the movie, "WAR GAMES". COMPUTER WAR will be compatible with the Atari 400/800/1200; the Vic-20; the TI 99/44 and certain other home computers. The game will be available September 15 and sell for $39.95.

The AIRPORT Air Traffic Controller game is now available from the Software Toolworks in a version configurable for most CP/M computer systems. AIRPORT can be configured for most 80 column, 24 line displays with cursor addressing, and uses character graphics if available. It comes in 8" CP/M format, and 5" formats for DEC, Kaypro, Osborne (80 line or Executive), Xerox, and Heath/Zenith computers. Suggested price is $19.95 and may also be gotten from The Software Toolworks, 15233 Ventura Blvd., Suite 1118, Sherman Oaks, CA, 91403.

Activision, Inc. has announced the release of two of its best selling games for the ATARI line of home computers. RIVER RAID and KABOOM!, both of which have sold more than one million units in their original designs for the Atari 2600, will be available at retail in October and will carry a retail price of $34.95.

Commodore International Limited announced record revenues, net income and earnings per share for the fourth quarter and year ended June 30, 1983. Mr. Irving Gould, Chairman of the Board of Commodore, in commenting upon the record results noted that "the past year's growth at Commodore was attributable to continuing and acceleration strength in Commodore's complete microcomputer line, including extremely strong demand for the C-64 personal computer."

MSA (Management Science America, Inc.) announced the acquisition of EDU-WARE SERVICES, INC. of Agoura Hills, CA. Edu-Ware is a leading supplier of educational microcomputer software for school and home use. MSA acquired all of the outstanding stock of Edu-Ware in exchange for a combination of MSA stock and cash of approximately $1,500,000 and some deferred payments based on future revenues and profits of Edu-Ware.

TG SOFTWARE has been announced as a new division of TG Products to develop and market programs for Atari-compatible computers. The parent company, TG Products, has been manufacturing joysticks, trackballs and game paddles for personal computers for three years. TG Software released four games at the Summer Consumer Electronics Show on cartridge for the Atari 400/800/1200XL computers. the games include DROIDS, NIGHTSTRIKE, OZZY'S ORCHARD and ABRACADABRA and will sell for $44.95.

Continued on p. 46

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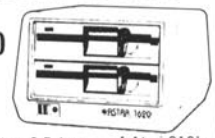
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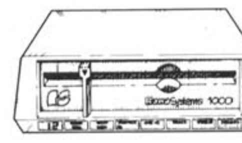
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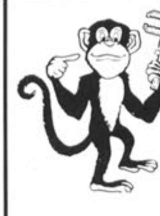
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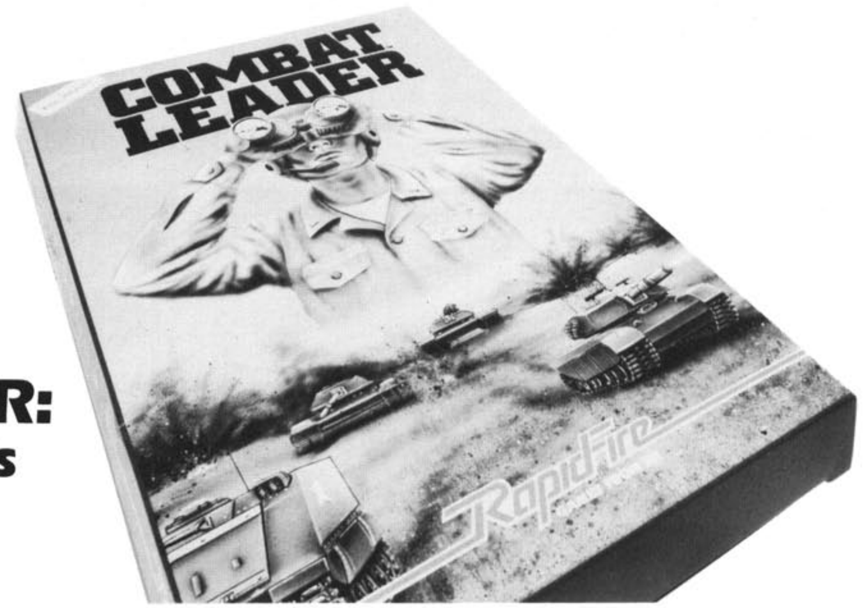
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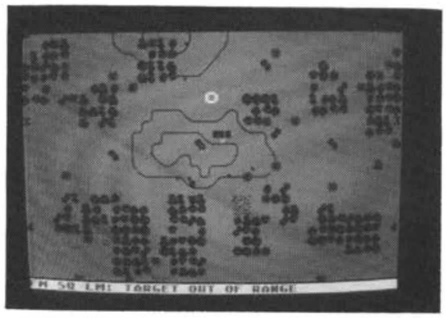
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COMBAT LEADER:
Review and Analysis

Floyd Mathews



NAME:	**Combat Leader**
TYPE:	**Wargame**
SYSTEM:	**Atari 400/800/1200**
FORMAT:	**Diskette**
#PLAYERS:	**1**
AUTHOR:	**David Hille**
PRICE:	**$39.95**
PUBLISHER:	**Strategic Simulations**



Combat Leader (CL) is one of the best tactical wargames I have played to date. CL is David Hill's first game design, and it is excellent. I hope he produces many more in the future. A platoon level game against the computer, CL simulates small unit tactics of the period from World War II to the present. You can play the company commander, or you can take a platoon and let the computer or another player command your company.

CL has many positive features, such as superb graphics and sound, the speed and sophistication of machine language programming, and the ability to create an infinite number of scenarios with new maps and units. It also has other superb features, which include real time simultaneous movement and fire, realistic line of sight and line of fire restrictions, very competitive solitaire play and capability, and "robot" subcommanders.

This game is extremely realistic, but it is the excellent arcade quality graphics which first seize your attention. You really have to see it to appreciate it. A vertically scrolling map occupies about three screens and represents about two square miles. The green map shows a variety of black terrain symbols with different effects on movement, line of sight, and protective cover.

Miniature individual tanks and armored personnel carriers (APC's) are represented from a bird's eye view with realistic graphic symbols which include gun facing. Also, each two-man buddy team of infantry is represented by a tiny cross symbol. The relative scale of the graphic symbols is very accurate.

You can actually see tiny yellow muzzle flashes spitting from firing units, red shell bursts in target areas, and grey smoke rounds vanishing with the wind. You can also hear the popping of high velocity guns, the whistle and crash of incoming mortar rounds, and the crackle of automatic weapons. As many as 118 moving units may advance simultaneously in real time, with as many as 70 additional symbols for smoke and fire. The overall visual effect is striking, and is comparable to an arcade game or even a videotape animation.

If the computer's mortars start ranging in on your position, you may even feel a strong urge to hit the dirt!

The program randomly generates a new map for each game, so you never get bored after mastering all the good ambush spots of a single map. Each new game presents fresh tactical problems depending on the lay of the ground. However, if you do find an interesting map, you can replay it as often as you wish in order to explore all of its possibilities.

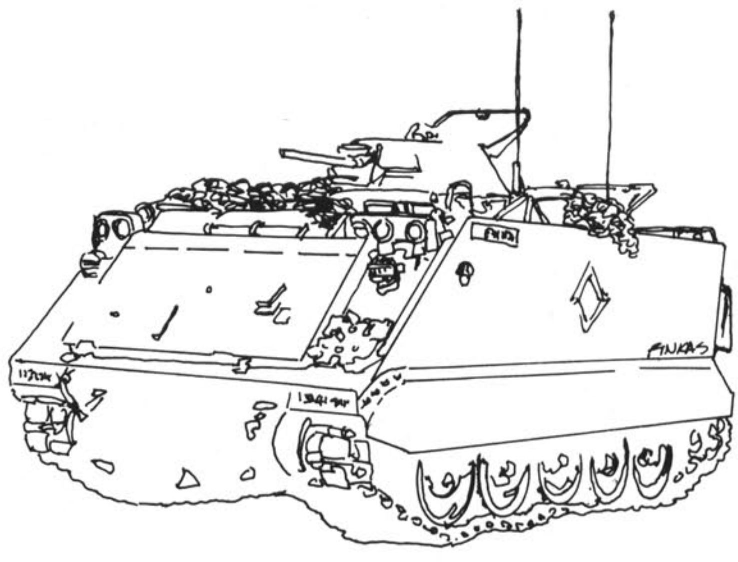
You can modify the random distribution of different types of terrain when generating new maps. If you want to design an *Afrika Korps* scenario, simply request lots of clear flat ground, a few depressions, zero trees or hills, and. . .*presto* — in a microsecond you will see a realistic stretch of the northern Sahara. Do you want to try a contemporary Fulda Gap scenario? No problem. Simply ask for lots of hills and trees, and the program gives you a typical rolling forest in central Germany.

The rulebook is well done and the program is very user friendly. It is very easy to enter the general characteristics of the most famous tanks and APC's from World War II to the present. You can also set the characteristics of infantry weapons of different periods, such as mortars, anti-tank guns, and so forth. In order to better simulate the "fog of war", it helps to have the computer or a friend set the forces for both sides so you don't know what you're up against.

The real time pace of the game is also adjustable. When you are first learning, you should set a slow pace. As you become more adept, you can speed up the pace so the game never becomes tedious. A typical game lasts about 30 minutes. If you blunder into an ambush, it can be a lot shorter.

Although this is basically a solitaire game, you and your friends can team up against the computer. You can each take a platoon, select someone to be the company commander for your side, and then pass the joystick around. You should set a slow pace so that you won't wrestle each other for the stick when the action heats up. Be careful though! I have seen games in which insubordinate platoon leaders were threatened with courtmartial for cowardice in the face of the enemy.

Your units always start near the bottom or south edge of the map, and the computer's troops start near the top. You can see all of your units on the screen, but as you scroll northward you can only see those enemy units which are visible to your troops under the line of sight rules. Your computer opponent operates under the same limited line of sight restrictions. Hence, if an enemy tank is behind a hill, in woods or in a depression; your forward units may not be able to see him, and vice versa. Further, if a visible enemy tank moves behind a hill, it will immediately disappear from the screen. This feature can really keep you guessing about the location of the enemy's main strength.



There are similar line of fire restrictions on *direct fire flat trajectory* weapons, such as high velocity guns and automatic weapons. These weapons can only shoot at *visible* targets. But your mortars are *indirect fire* long range weapons. You can arc mortar rounds over a hill to blast invisible targets on reverse slopes. Therefore, your mortars are probably your best weapon in this game. My only complaint is that the mortars appear to be too effective against tanks. In reality, I doubt that infantry carried mortar would have much effect against tanks.

In addition to building your own new scenarios, there are six variable scenarios included with the program. The novice and intermediate scenarios are simple games for learning the game system. In the attack scenario, your goal is to destroy as many enemy units as possible. In the objective scenario, the program randomly marks a key terrain feature with an "X", and both sides must try to seize and hold it. In the mobile defense scenario, your job is to maintain a defensive line as far north as possible for as long as possible, while the computer tries to break through to the south. In the recon scenario, you command a small light armor force and try to infiltrate northward against superior forces in order to spot as many enemy units as possible without being destoyed.

All the scenarios are interesting, but I find the mobile defense is the most intriguing. You have the extremely difficult tactical problem of defending almost 1700 yards of front with inadequate forces, with the scenario bringing out the sneakiest traits of your computer opponent. Once I set up a good defensive line holding most of the high ground. The wily computer feinted in strength toward the left side of my line until I committed my armor reserve, and then it punched through my weak right side with most of its tanks.

Another interesting aspect of the program is the use of "robot" subcommanders. You can directly command individual tanks, APC's and infantry squads if you wish. But it is probably better to give general orders to each of your "robot" platoon leaders, and let them carry out the details of movement. This is one of the great innovations of this game: *It is not necessary to tediously plot movement for each of your units!* For example, you could order one of your tank platoons to occupy a wooded hilltop 500 yards forward, and then watch as the program individually maneuvers the five tanks toward the objective, carefully selecting the best line of advance, utilizing protective terrain, and covering each other.

Firepower is the key factor in this game. When units come under enemy fire, they have a very realistic tendency to slow down, take cover, and

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ARCHON: Review and Analysis

David Willis

NAME:	**Archon**
TYPE:	**Strategy/Arcade**
SYSTEM:	**Atari 400/ 800/1200XL**
FORMAT:	**Disk**
#PLAYERS:	**1-2**
AUTHOR:	**Westfall, Freeman, & Reiche**
PRICE:	**$40.00**
PUBLISHER:	**Electronic Arts San Mateo, CA**

If you like the idea of chess, but always thought it was too much work to be recreation; and instead of fighting with bishops, rooks, and pawns, would like to fight with things like dragons, wizards, valkyries, manticores, and goblins; then Archon is your game.

Archon, created by Anne Westfall, Jon Freeman, and Paul Reiche III, is a highly imaginative game, and very well designed. Just how they got the idea for the whole thing is explained in the program notes (one source of inspiration was the holographic chess scene in Star Wars). They provide a great deal of information on the thinking behind the game as well as humorous biographies on the authors. They really want you to feel the personal and artistic efforts that went into the game, and you do. I felt more interested in the game after having learned about the authors and the background of the project. As for the game itself . . .

It is played on a chess-like board, except that half the squares (called *delta squares*) are constantly changing color. The other squares remain black or white but, after every other move, the delta squares shift towards black, shift totally to black, then start shifting to white, and back again (or vice versa). As in chess, there are two sides — black and white (or the *Light* and the *Dark* as they prefer to call them). There are also five squares on the board that contain "*power points*". To win, you must capture all five (you start out with one). The other advantages to power points are that when you are on one, you heal more quickly and cannot be affected by magic.

Each side has a wide array of pieces, as in chess. Unlike chess, however, few of your pieces are identical to the other side's. The pieces, called icons, move from three to five spaces (by *walking, flying,* or *teleporting*). Walking pieces cannot move through other pieces, even your own; whereas a flying or teleporting icon can. The icons are various forms of creatures and humans from mythology and fairy tales.

When you move an icon onto a square containing an enemy icon, that square expands to cover the entire screen, and the two of you fight for possession of the square. Each icon has different characteristics; *lifespan* (how many hits it can take), *speed* (how fast the icon may move), *attack strength* (how much damage his attack does),*attack speed* (how quickly his attack travels), *attack interval* (how long he must wait to make his next attack — you can't just fire machine gun style), and *mode of attack* (this can be with a sword, with fiery breath, bow and ar-

row, etc.) Learning each icon's characteristics is a very important part of the game, so that you can avoid sending a creature into certain death.

The battles are entirely arcade-style, and require fast reflexes and quick thinking. The lifespan of each icon is displayed on the screen, and each time it's struck the span diminishes. When the lifespan line is gone, the icon is dead (well, he knew the job was dangerous when he took it) and the winner takes possession of the square. Any wounds received by the winning icon will remain, and can heal over time or by a spell cast by the wizard/sorceress. Don't forget, that if you're on a power point, you will heal more quickly. Also — and this is crucial — if you are on a square that is the same color as you (black on black, white on white), then your lifespan can be up to 50% longer than normal. Not only that, but your enemy's lifespan is reduced if he's on the wrong color. It becomes important to have your battles on a square that's a favorable color to you. If you're able to surprise an enemy's big nasty monster on a color that's unfavorable to it, you can destroy him a lot more easily than you could otherwise. Since wounds carry over to the next battle, you could also kill off a strong icon by sending a succession of weaker icons against it and wearing it down.

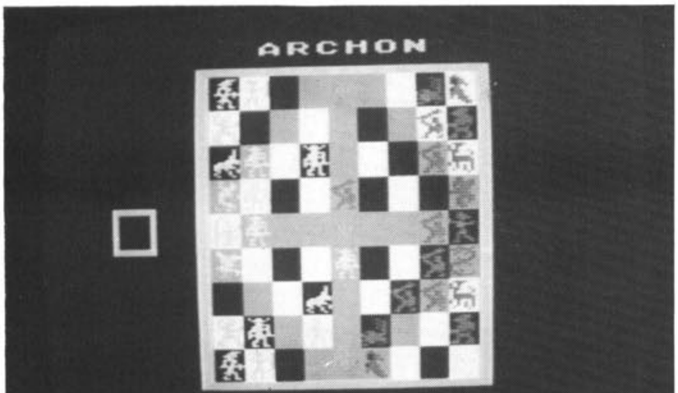
It is apparent that a great deal of work went into the makeup of each icon. There are subtle differences in their strength and weaknesses, and in the way they move. For instance, the *Unicorn* makes a cute little clopping sound when it moves; the *Troll* has a heavy shuffle, and the flying creatures sound like their wings are beating against the air. Each icon's characteristics combine to make him unique, for example: The *Phoenix* (a piece on the Light side) attacks by exploding into a ball of fire, which lasts about a second. Anyone caught in the flames takes damage, with the amount of damage depending on how long it was exposed to the flame. The Phoenix has a long attack interval (the time it must wait to attack again), so to compensate they made him invulnerable to damage while he is exploding. After he explodes he's got to run like crazy till he's able to attack again.

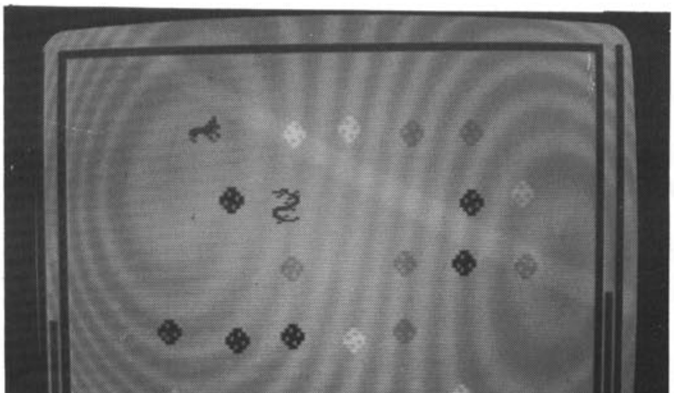
Another example: the *Golem* and *Troll*. They move very slowly and have a slow attack speed with a long attack interval but attack with great force. So, when they do hit, it hurts. They also have a long lifespan. Another icon, the *Basilisk* (dark side) has a powerful attack force, a short attack interval, and a fast attack speed. It sounds ideal till you look at his lifespan, which is short. He packs a big wallop, but he's gone if he takes one or two hits.

One of the most interesting pieces in the game (and the most fun to play) is the *Shapeshifter* (dark side). He has no characteristics until he goes into battle, where he changes into a duplicate of whatever he's fighting. This is a very handy and powerful trait, but it can be used against him. By sending in something weak and stupid, you have just as much chance of killing off the Shapeshifter as with a powerful piece. It can be very annoying to the Dark side to have a nice icon removed by a little Knight.

There are many strategy options available in this game. You can be conservative and just try to wear down your opponent or dash madly into the fray hoping to gain lightning victory. You also have the choice of playing against the computer or against another human being. It's definitely more fun with a human unit. We ended up screaming and howling during the heat of the battle, hurling insults and battle cries. These battles were *enjoyable* even when you had little chance of winning a particular skirmish. It's always worth a try to be a David to a Goliath, and it has worked many times. There is nothing like the feeling of walking in with a *Knight* (the weakest piece) and knocking off a *Troll* (a very large and nasty critter whose mode of attack is to rip boulders out of the ground and toss them your way). While he's doing that you run around with a little sword trying to nick his knees. Of course, if you nick him enough . . .

Since you have such an advantage if you're on a favorable color, timing is crucial, and you must make your win-





ning thrust all at once, before the colors shift back again. Very important to winning is timely use of your spells. The Light side has a *Wizard* and the Dark side has the *Sorceress*. These icons can cast spells. They both have the same spells to use, but they can cast spells only once per game and each spell they cast decreases their lifespan slightly, making them weaker in combat. The spells are: *teleport, imprison, heal, shift time, exchange, summon elemental,* and *revive. Teleport* lets you move any icon of yours not on a power point to any non-power point square on the board. This is a great way to send a powerful monster into the enemy's rear ranks and create havoc. *Imprison* prevents an enemy icon from moving till the delta squares turn to its color. This is good for keeping a key piece out of your way while you launch your offensive for the power points. *Heal* does just that, bringing a wounded icon's lifespan back up to full. *Shift time* reverses the flow of time. If the delta squares are currently turning black, then they start shifting to white after you cast this spell. *Exchange:* this makes any two icons (not on a power point) trade places. If you're threatened by a powerful icon, you can switch him for a wimp from the back ranks. *Summon* Elemental: causes an elemental to appear (earth, air, fire, or water) and attack an enemy icon. This is handy for getting rid of or just weakening an annoying enemy unit without risking one of your own. Their only drawback is that once the battle is over, they disappear, win or lose. *Revive:* brings back one dead icon. I use this one every game I play. If the enemy hasn't used his *revivespell* yet, it might be worth your while to kill off his spellcaster just for that reason.

There's no doubt that correct use of spells can determine the outcome. Launching a heavy attack when the colors are shifting in your favor, then casting *shift time* to give you more time after they start to shift against you is a standard move. Sometimes I will make an all-out attack on the wizard or sorceress to deprive the enemy of their spellcasting ability. Having the only spellcaster can give you an enormous advantage.

But no matter how smart you are on the strategic board, if you fall apart on the tactical arena you will lose. Some people (sore losers — including me) have, at one time or another, said that the outcome of the game depends *too* much on the tactical battles and not enough on strategy. I found, however, that after playing for a while most people arrive at a level of proficiency that enables them to enjoy the game. One good way to become proficient is to play the computer. The computer does not play well on the strategic board (often ignoring moves that could win) but can be deadly in the arena. It makes those 45 degree angle shots very easily and always seems to know exactly where to aim. In fact, playing against the computer for your first game can be very frustrating indeed and there may seem to be no hope of winning. Have patience, as after a while you'll see that it tends to play certain pieces the same way every time and gets rather predictable; letting you set it up for the kill. If you play the computer consistently, you'll start to beat it every time.

You'll also find that you develop an expertise with certain types of icons, and can play them better than others. For instance, I can't play the *Banshee* very well and lose many times when I should have had an easy victory. (The computer, by the way, plays the Banshee better than any human I've seen). Conversely, my opponents groan when I attack with the *Djinni* because they've seen it down many an icon.

I come from a boardgaming background and I don't particularly care for most arcade-type games, but the beauty of this game is that there's a reason for each battle. You want to move into this space? Fight for it! Maybe most players don't need this rationale, but somehow it makes it better for me. Better, at any rate than defending Earth against invading aliens. (What, another invasion? Ho hum . . .) Plus, each piece fights differently, so that it's not just a matter of developing reflexes. After you've learned the game, you don't have to ponder each move for ten minutes — you can just pick a strategy and run with it. It makes for a fast moving game.

In conclusion: this is a very good game, with lots of care put into its development. I recommend it highly and would only hesitate to recommend it to those who love only purely strategic games. If you're turned off by most arcade type games because you like to think a little, this hybrid may be for you. I play it frequently and do not find it predictable at all. The people at Electronic Arts are breaking a little new ground here by putting together some old and new ideas in a way worthy of your computer, and I hope they continue to manipulate electrons in such a delightful manner.■



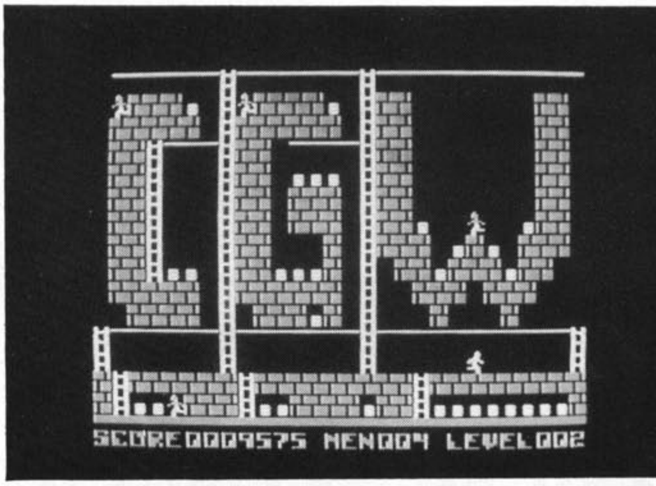
LODE RUNNER

John Besnard

NAME:	**Lode Runner**
TYPE:	**Arcade/Strategy**
SYSTEM:	**Apple II (48K)**
FORMAT:	**Disk**
#PLAYERS:	**One**
AUTHOR:	**Doug Smith**
PRICE:	**$34.95**
PUBLISHER:	**Broderbund Software San Rafael, CA**

Is there really room for another game that has scaffolding and ladders? Well just maybe, but it would have to be really good. After all, we've already learned to use a shovel in **APPLE PANIC.** We've already defused bombs in **CRISIS MOUNTAIN.** We've collected a few brews in **BEER RUN.** And we've avoided wild goats in **CANYON CLIMBER.** It becomes immediately obvious that programmers love ladders. Doug Smith is no exception. He's got loads of them in his new game **LODE RUNNER (LR).** There are 150 different sets of scaffolding and ladders with which the user must contend. Although they are all based on the same theme, I couldn't find any two that played the same way. Each one has it's own unique challenges. I was devilishly proud when I finally completed level 123. Now don't get the wrong idea. I didn't get there by completing the first 122 in a row. Doug is reasonably civilized. You can play the level of your choice by entering the edit mode. The basic objective of each scenario is to collect all of the gold ingots that the bad guys have left lying around. These same bad guys (the Bungelings of Choplifter fame) have left a bunch of robot guards around, too. If they so much as touch you . . . well, we all know what happens then. All is not completely one-sided, however. Mr. Smith has been kind enough to give us a weapon: a Laser Pistol. For some reason it's useless on the robots, but it does a dandy, if somewhat temporary, job on the scaffolding. The hero and the robots can fall into the holes created by firing the laser pistol. If the robots fall, they get stuck and the hero can walk on their upstreched hands to safety. If the hero falls and goes though the scaffolding completely, he drops to the next lower level. If not, the wall soon reforms on his tender body, revealing yet another way to commit video suicide.

The robots come with a built-in intelligence. It's not too terribly sophisticated, and is very predictable. This trait, and the fact that the hero always goes faster than the robots, makes Lode Runner a game that requires more strategy than most arcade games. Planning which scaffolding to vaporize and in which order makes this one of the few thinking men's arcade games. It might take you a good month just to figure out a strategy on each of the 150 levels. And if that isn't enough, the game comes with an editor, allowing the user to fabricate his or her own



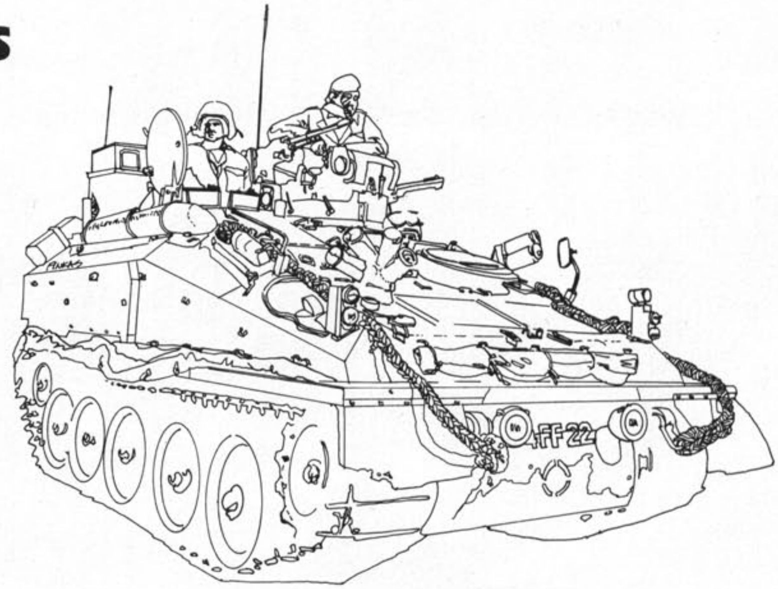
games. The photo example shown above was created especially for Computer Gaming World.

This is perhaps the easiest game creator I have ever seen. Use the *I,J,K* and *M* keys to move an oversized flashing cursor around the board. Then, by simply pressing any of the keys *0* through *9* an element of the game is formed. Put in horizontal and vertical ladders, diggable and non-diggable floors, trap doors, gold ingots, the good guy and the bad guys. Save the game on an initialized disk (there's room for 150 more) and then test it. This data disk doesn't boot, so it doesn't make much of a gift, but if your friends have Lode Runner, challenge them to your creations. Make sure you can win first, though, because they just might want you to prove it can be done.

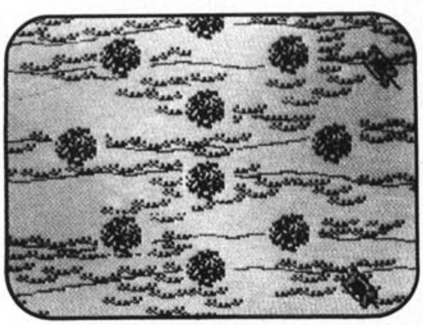
Make room for the newest ladders and scaffolding game. And I bet you can't do level 123 on your first try!

TAC: Review & Analysis

Dick Richards



NAME:	**Tactical Armor Command**
TYPE:	**Wargame**
SYSTEM:	**Apple (others to follow)**
FORMAT:	**Disk**
#PLAYERS:	**1 or 2**
AUTHOR:	**Ralph Bosson**
PRICE:	**$40.00**
PUBLISHER:	**Avalon Hill Baltimore, MD**



Tactical Armor Command (TAC) is Avalon Hill's new game of World War II Armor/Combined Arms combat. Each side can control up to eight units in your choice of five different scenarios. The game includes eight major armored fighting vehicles from each of four nations — the *US, USSR, Germany,* and *Great Britain* — as well as infantry squads and field guns for each nation.

TAC can be played against the computer at four varying levels of difficulty, or against a human opponent. In starting the game, you allocate a certain number of points per side, and then select your units by "buying" them through the expenditure of those points. This effectively allows handicapping of one side to even things out against an inexperienced opponent, and also serves as a guideline to allow you to know that the sides are even when you want them to be.

TAC is played on an 1800 × 2000 meter section of the north German plain, with the map divided into fifteen sectors. The sectors are labeled *A* to *E* along the vertical axis, and *1* to *3* along the horizontal, with sectors *A-3, B-1, D-3,* and *E-1* containing woods. The other sectors are devoid of terrain, there apparently being no roads, ravines, hills, rivers, creeks, or towns in this particular section of Germany. The woods left me somewhat frustrated, since it is difficult to know exactly where the border of the woods lies. The instruction booklet points out that units are not shown in their correct scale to one another in conjunction with the size of the board, and I suspect this is part of what makes the edge of the woods difficult to determine. Nonetheless, it was often very hard to set my units to halt just inside the woods with my gun alone sticking out of the trees. I'd usually find that either I had halted still in the forest and was unable to see anything, or that I was out in the open for all to see, and destroy.

Movement is directed by means of a "control yoke" on the keyboard. Key *U* directs the unit to move forward, *H* and *J* direct a left and right turn respectively, and *N* moves in reverse. When the movement phase begins, your unit revs its engine and starts moving. It then moves straight ahead for the full distance possible unless you order a turn or a shift into reverse. I'm not sure what the *U* key does (orders a forward move) for Armored Fighting Vehicles (AFV's), since the unit moves forward on its own. This method of movement was one of my main complaints about the game, since it requires fast action to enter your orders, you aren't sure exactly how far a unit may go and, as I said earlier, the only visible terrain features (woods), have well nigh indistinguishable edges. Perhaps I am simply too "hex oriented" to appreciate this design, but I found it frustrating not to be able to give more detailed movement orders.

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ZORK III

As told by Scorpia

Welcome back! A chair is waiting for you by the fire, and Fred is pouring out a tall one (Spelunker Beer; only the best for my customers!) Now, settle in, and I'll tell you a little about **ZORK III.**

The first think you'll notice, as you wander through this part of the Great Underground Empire, is that it's not as extensive as the previous Zorks. Compared to the others, Zork III is actually tiny. In fact, if you have a good memory, you might not even need to make a map, although having one is always helpful, especially in Shadow Land.

Right about now, you should be getting suspicious. If the game is that small, there can't be too many puzzles. And if there aren't many puzzles, the ones that ARE there must be mean ones. Which just happens to be the case. There are only 7 points to accumulate in this game, so that should give you an idea of what you're up against. Oddly enough, obtaining the points isn't hard. In the first two Zorks, you received points for accomplishing difficult tasks or gathering treasures. In Zork III, you get the points for doing easy things, not for doing hard ones. As an example, you get one point for climbing down a cliff and finding a chest. That's the easy part. The hard part is getting the chest open, for which no points are awarded. This can make the game very puzzling; you find that you're picking up points very quickly, yet you are nowhere near finishing the game. In fact, you might have 5 or 6 points, and still have no idea of what's going on. So, keep in mind that your current score is only an indication of how you are doing. There is much more to Zork III than meets the eye.

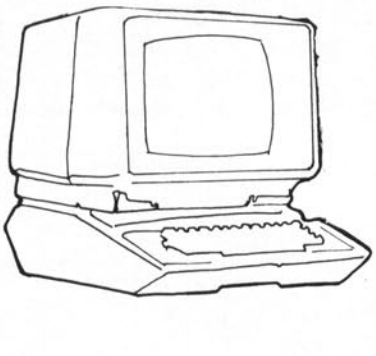
Now let's look at this mysterious land in a bit more detail. You start at the foot of an endless staircase, with the familiar brass lamp nearby. Those stairs really are endless, so don't waste time trying to climb back up. Instead, take the lamp and begin your explorations. You will first come to the four-way junction, with a sword in a rock. Yes, it's your old friend, the Elven sword. Don't bother trying to pull it from the rock, though, because there's no way to do that. Just leave it; in time, the sword will come to you. Moving west from the junction, you eventually come to the cliff mentioned above. Climbing down the handy rope, you come to the ledge with the chest. At this point, you will find that you can't climb back up the rope while carrying the chest. What to do? Well, just be patient, and remember not to be greedy. You aren't on a treasure hunt this time out. Climbing all the way down the cliff will lead you to the fabled Flathead Ocean. No swimming allowed, but if you hang around long enough, something should happen. You will have only one chance to do the right thing, so it's best to save the game before going to the beach (read a book from Zork I while you wait).

Another interesting spot is the lake area. Here's where you get to do a little swimming. You'd probably rather not, as the waters are pretty frigid. Alas, there's nothing to be done about that, so plunge in! Just be sure to drop what you're carrying first. You can't stay in the water very long, so make for another shore quickly. It's better to visit the western side of the lake first. This is where you'll find a strange place called "Scenic Vista". There doesn't seem to be much here, but everything in this room is quite important. Examine all objects with care, and don't be afraid to experiment. Get physical, if necessary. When you finally leave here, you should not be empty-handed.

When you re-enter the lake, you'll drop whatever you have with you. Don't worry, just dive down to the bottom, keeping an eye out for hungry fish. Pay careful attention to the description here, or you'll miss something. Since you can stay under for only a limited time, you may need to make more than one visit to the lake bottom. Once you're back on the surface, swim for the southern shore, and head into the cave. Yes, it sure is dark in there, and you don't have any light. However, if you did the right things at Scenic Vista, you won't need a light source here. Once inside, it will be fairly obvious what to do and where to go.

After that, you may want to pay a little visit to Shadow Land. It's a spooky sort of place, and a bit difficult to map. However, this area isn't a maze, and it can be mapped if you pay careful attention to the descriptions. What you're looking for here is a mysterious person in a hood and cloak. You must wander around until he appears. Be aware that he is not friendly, so trying to be nice will get you nowhere. On the other hand, killing him will not help you to win

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THE NAME OF THE GAME

Jon Freeman

THE EMPEROR'S NEW CLOTHES

I really wanted to write about something less critical this month, but my friends and associates insisted that somebody had to point out that the emperor has no clothes.

I'm speaking, of course, of the *Commodore 64*, which has to be the most overpraised, deceptively advertised, and "user-hostile" machine to appear in years. If you've already got one, you may not (yet) realize how thoroughly you've been hornswoggled. No one can blame you; it looked so good on paper, and the magazines have so studiously avoided more than a hint that the 64 isn't the answer to the prayers of every would-be computerist in the land.

In recent weeks, publications as prestigious as the New York TIMES and the Wall Street JOURNAL have printed articles that sound like Commodore press releases. After praising the wisdom and foresight (!) of Commodore executives and the efficiency (!!) of the company, the writers, who obviously have no first-hand knowledge of personal computers, cited the 64's unique potential as a learning tool ("something more than a game machine"), advanced features, and low price — all qualities unmatched by any of its "old-fashioned" competitors like the Atari 800.

Obviously, they're not talking about "our" Commodore.

Let's start with something easy: price. Anybody who's been looking at the ads must surely have noticed that you can get an Atari 800 for about the same price as a 64, and the 400 is much less. The new 600XL and 800XL are expected to be in the same ballpark. An Apple IIe is substantially more expensive but also a far better computer, with better and faster drives, far better documentation and customer support, and a hundred times more peripherals. Not to mention software . . .

REMEMBER THE PET?

It's true that you'll probably soon be seeing more software for th 64. Nobody likes to program on the machine, and the company is worse than unhelpful, but the untapped market is prompting a lot of conversions. Commodore is notorious for whimsically changing their computers, disk drives, and operating systems so that no two will run the same software. If they do this to the 64 (and they announced at CES their intention to do so *without warning outside developers or the public*), or if the current rush to the 64 falters, software developers will jump off the bandwagon even faster than they got on.

All right, you say; so the company's not the greatest. What about the machine itself?

For starters, the "64K" is largely illusory. The ordinary user working in BASIC has only about 39K to play with — almost exactly the same as an Atari 800 with a BASIC cartridge.

The textual display is arguably the poorest of any computer's. The color is unappealing; the print is hard on the eyes; the background looks like graph paper, and the screen is rife with RF interference. (Don't believe a saleman's claim that it's just the conditions in the store; it always looks that bad.) An improved graphics chip on newer models helps some, but if you're stuck with an older one, you're just stuck.

Of the ballyhooed 16 colors, *five* are black, white and three shades of gray. Only half are available at any one time as foreground characters. Only *one* of the 16 — black — makes a decent background for most colors. The vast majority of other foreground/background combinations produce unintelligible smears. (While the Atari is not immune to this, the 400/800 are not nearly so bad as the 64, and the XLs are better still.) The Atari offers 16 colors in 8 shades apiece — 16 shades in one GTIA mode.

The 64 has eight sprites; the Atari has four "players" and four "missiles." Sprites are wider; player-missiles are taller (the full screen height, if you want). Sprites offer the potential of higher resolution or multiple colors; on the other hand, they're far clumsier to move and occupy more memory.

Although obviously more elaborate than the Apple's, sound on the 64 rates no better than a toss-up with the Atari's. The 64 has more controls, but they get in the way as often as not, and the Atari is much easier to use.

Collision detection on the 64 is a joke (It will tell you that something ran into something, but if you want to know *what*, you have to go to a lot of trouble.) You won't find any information about reading the joystick from BASIC — perhaps deliberately. (The 64 has trouble telling a joystick command from a random keystroke. If a game you're playing periodically crashes, restarts, or does other inexplicable things, this may be why.) Nor does Commodore's BASIC support elementary graphics commands.

CAVEAT USER

It is in the area of "user-friendliness," in fact, that the 64 sets new lows. The User's Guide that comes with the computer is almost totally useless; to do anything of consequence requires the Programmer's

Continued on p. 50


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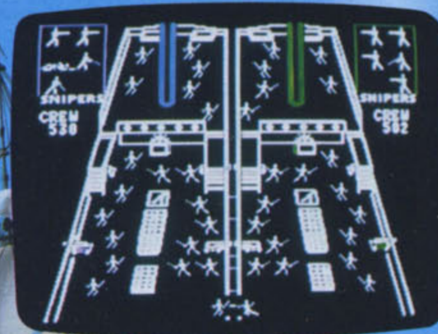
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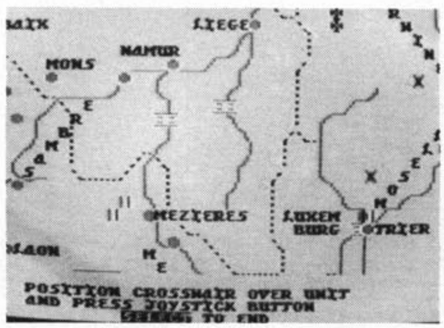
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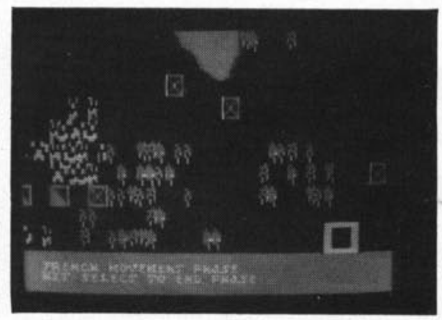
PARIS IN DANGER:
Strategies and Rules Modifications

Floyd Mathews



NAME:	**Paris in Danger**
TYPE:	**Wargame**
SYSTEM:	**Atari 400/800/1200**
FORMAT:	**Disk**
#PLAYERS:	**2**
PRICE:	**$35.00**
PUBLISHER:	**Avalon Hill Baltimore, MD**





PARIS IN DANGER (PD) is both a strategic and a tactical level simulation of Napoleon's campaign of 1814 in defense of Paris. After the disastrous 1812 Russian misadventure, Napoleon was thrown on the defensive. Numerically superior Allied armies invaded France in 1814 from three different directions.

The Allied victory objective is to obtain 60 points by capturing and holding French towns. Each town is worth one point and Paris itself is worth 30 points. There are 62 French towns on the strategic map which can be captured, but practically speaking, the Allies will probably not be able to take Paris agains a competent French player. A more realistic Allied plan is to try to capture 60 smaller towns. The Allies *do not get any points for destroying French units.*

The French victory objective is simply to obtain 60 points by destroying 45,000 Allied soldiers. French casualties are not subtracted in determining French victory points.

Each game turn on the strategic map represents one week, and the entire game lasts 25 weeks. If neither player achieves 60 points within 25 turns, then whoever is ahead is the winner.

The players use a joystick to secretly plot movement for *each* of their corps for *each* turn on the strategic map. A corps can move one square per day, plus bonus moves for forced marches. You can also concentrate several of your corps in the same square on the strategic map by stacking them atop each other, *but each must be moved separately*. After all movement is plotted, the program displays simultaneous movement for all corps one day at a time.

If during the movement execution phase, opposing corps should enter the same square of the strategic map on the same day, the program immediately shifts to combat resolution on the tactical map. You have the option to either have the program resolve the battle automatically, or to fight it out in detail with the tactical battle subroutine.

If you do go to the tactical map, all corps present are broken down into their respective divisions of cavalry and infantry with artillery alloted to each unit. The tactical combat subroutine is very detailed, and large battles can take an hour or longer to

complete. The tactical display is also a scrolling map and occupies about six screens. There are four random tactical maps for variety, but on the very large scale of 200 feet per square, much of the terrain on the tactical map is clear.

The Tactical Level game has three phases and lasts for 48 turns or until both sides decide to end the battle by pressing the *option* key. Each player may move any or all of his divisions, each unit fires its artillery. Finally, each unit has a melee / fire phase. Individual casualties are displayed for each division, as well as morale level. If a division's morale is shattered, it may halt or even rout.

You can also form your infantry divisions into the standard formations of this period — such as *line, column, mixed* or *square* — with each formation having different effects on *morale, movement, firepower, casualties taken,* ability to *face* enemy *cavalry charges,* and so forth.

The high resolution graphics of the strategic map display are excellent. The tactical map display has lower resolution graphics, but is adequate for their purposes. Surprisingly, most of this program is written in BASIC. Despite this limitation, the program is very detailed, runs fairly quickly, (although I do think the strategic movement joystick control subroutine is too slow). And, if you make a mistake in entering movement on the tactical map, there is no command to correct the error.

Rules Modifications

The following suggested rules modifications are intended to shorten the game and also to add realism. *First,* let the program resolve all tactical battles automatically, with the exception of giving the French player the option of picking three battles to fight on the tactical map. This will save a lot of time, plus the automatic results tend to be more realistic than the tactical map results. In reality, the French often outfought the Allies even when outnumbered, and the automatic results are accordingly slanted toward the French. But, if both players have equal skill, the French may not often win on the tactical map. Additionally, many battles on the tactical map tend to be *unrealistic massacres* with much higher casualties than in real battles, because the losing army cannot retreat off the tactical map. In order to avoid these unrealistic massacres, I suggest that you permit either player to terminate any battle on the tactical map after *15 turns* by pressing the option button. With the automatic resolution feature, the loser's casualties will rarely exceed 20 percent even in the worst defeat. To further shorten the game, I also recommend a 15 turn limit for the strategic phase, which is about the same length as the historical campaign.



Secondly, at the start of a turn on the strategic map, each player should tell the opponent where each of his corps is located. This will save both of you the time and eyestrain of searching for them. Further, it can be very frustrating for the French player to lose a game merely because he overlooked a single Prussian corps sneaking toward Paris "camouflaged" in some script on the map display.

Thirdly, one of Napoleon's big advantages in reality was his unified national command, which the Allies lacked. You can better simulate the lack of Allied unity with a four player game in which each Allied army is commanded by a separate player. Further, under this rule modification, if any Allied army sustains more than 30 percent casualties, that player must immediately march all of his corps eastward and quit the game. This simulates the fact that the Allies, particularly the Austrians, were not confident of victory, and were unwilling to fight a war of attrition.

French Strategy

The French player should obviously try to engage in as many battles as possible in order to try to get 60 points before the Allies capture 60 towns. If you agree to use the first rule modification discussed above (in which the program automatically resolves most battles), the French should try to use their three options to go to the tactical map whenever they catch a smaller Allied force, and try to wipe it out. With this rule modification the French can also risk battles even when outnumbered three to one and, using automatic resolution, still get excellent results. However, if you do not use this rule modification, the French player should probably try to avoid most battles at three to one odds on the tactical map, as the Allies might wipe out the smaller French force.

There is one special situation in which the French can always risk engaging a superior Allied force at worse than two to one odds on the tactical map: If the French have more than 24 divisions on the contested square on the strategic map, the tactical subroutine will only pick up the first 24 divisions for each side for display on the tactical map. Therefore, if the French have at least 24 divisions, the French will always get *at least even odds* on the tactical map. This is a rather major glitch in the program, and it helps the French player who stacks 24 divisions per square.

Allied Strategy

The Allied player should always try to avoid battles, except where necessary to win control of an important town or bridge. When required to fight, the Allies should try to get odds of at least three to one. After a

battle is resolved, the program retreats the surviving defeated corps one square on the strategic map (usually toward the east for the Allies and usually westward for the French) with the victorious corps retaining control of the square. *If retreat is blocked by a river on the strategic map, all of the defeated corps are eliminated!* Therefore, it is risky for any commander to fight on a square adjacent to a river unless he is prepared to fight to the last man on the tactical map.

The Allied player has one big advantage on the strategic map: he can easily plot evasive maneuvers in order to hopefully dodge around or retreat away from French corps seeking battle. In general, if French corps are nearby, the Allied corps should try to converge into a powerful stack, and try to avoid the French.

However, if no French are near, the Allied corps should disperse in order to capture many towns as quickly as possible.

I recommend the following four prong invasion plan for the Allies. All Allied corps must of course try to avoid early battles, even by withdrawing from France if necessary. The main Allied thrust should be made by the seventh corps initially located north and west of Strasbourg. The abbreviated corps designations are as follows: P1, PG, A3, A4, R3, R5 and RWOR, comprising 84,000 men. They should march west through Nancy or Metz, and look for a chance to cross the Meuse River unopposed at Verdun or St. Mihiel in order to threaten Paris from the east. If a large French force advances to the Meuse bridges to oppose a crossing, this Allied force should retreat and try to draw the French away from Paris.

The second major Allied thrust should be composed of the six corps initially located south of Strasbourg (PB, A5, R1, R2, R6/cavalry and R7) totalling 69,000 men. They should swing south through Basel and Belfort, and then try to strike northwest toward Paris along the east bank of the Seine. Regrettably, the Yonne River (which meets the copyright declaration at the southern border of the strategic display) is *impassable,* hence this second prong cannot strike west across the Yonne to threaten Paris from the southwest by the "back door". However, this force can threaten to capture the towns east of Melun, and later in the game possibly cross the Seine at Melun to then threaten Paris by the back door.

The four Allied corps initially located north of the Moselle River (P3, PL, RSBW and R11) totalling 43,000 men should try to cross the Meuse unopposed near Liege, then race westward across Belgium, and try to capture as many French towns as possible in the vicinity of Cambrai. Later in the game, this force should



try to move south to threaten Paris directly from the northwest, or cross the Seine west of Paris in order to threaten Paris by the back door.

The fourth Allied prong should be composed of the three corps (P2, R9 and R10) initially located west of Mannheim totalling 18,000 men. They should move west through Trier into Luxembourg, and hopefully cross the Meuse unopposed near Mezieres. Later in the game this force may try to proceed westward to capture any undefended towns north of Paris, and possibly threaten Paris directly from the northeast.

The French player must try to react promptly to Allied threats, hence it is very difficult to define any general French strategic plan. Obviously, the French must always protect Paris, and should try to prevent any Allied corps from moving between Paris and blocking French corps. The program checks for victory conditions *daily* during the strategic movement phase, therefore the French should not allow any Allied corps to occupy Paris at any time during the movement execution phase. The French should try to control important bridges and utilize the rivers east of Paris as barriers to delay the Allied advance, and also to hopefully trap an occasional Allied army.

Inevitably, as the Allies bypass French strongpoints, the French will be forced to withdraw toward Paris in order to concentrate for its defense. If the French can make a last stand holding Paris, Versailles and Melun, they have a chance to win very late in the game. The French should try to keep 24 divisions at Paris in order to get good odds on the tactical map if that city is attacked. If most of the Allied armies are kept northeast of the Seine, the French player should be able to utilize the much shorter interior lines southwest of the river to rapidly shift reinforcements between Paris and Melun, concentrating wherever necessary to meet Allied threats. The French at Melun should always look for a chance to try to break out east of Melun to recapture any undefended towns. Additionally, the tiny Fifth corps (2,000 men) should be detached from the main French army and sent north to try to recapture as many undefended towns as possible in the vicinity of Cambrai.

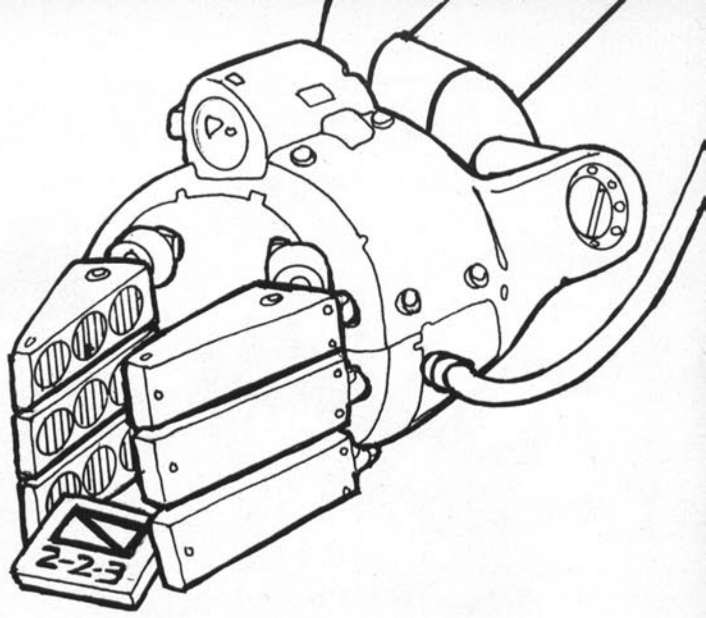
Tactical Tips

When you do engage on the tactical map, I recommend that you form your infantry divisions in line formation, and place them shoulder to shoulder in order to cover each other's flanks. You should anchor your infantry flanks on woods, or the edge of the map rivers if possible, for protection against flank attacks. Your cavalry are your best shock troops, and you should try to circle them

Continued on p. 47

Boardgamer Meets Computer

Jay C. Selover



What the heck is going on here? I've been playing board wargames for a while and feel like I'm really "in" the hobby. So, of course when wargames for personal computers started to spring up, I got right into it. (At least I thought that last December was pretty quick.) So how come people are already talking about "third generation" designs which are now being supplanted by the "fourth generation"? Things must be moving *very* quickly in this fledging hobby. I'm sure that I'll enjoy watching it grow from here, but I still feel like a father who missed the first two years of his child's life — there's much yet to come, but how much have I missed?

So how does computerized wargaming measure up for a crusty old hard-core like myself? Pretty darn well, actually! I'm sure that all board wargamers have considered the potential benefits of computerization: true limited intelligence, unbiased refereeing and rules arbitration, and challenging solitaire play. All of these are being addressed to some extent by current computer wargames, but I can also see another forthcoming benefit. With a tremendously expanded market of potential consumers, good computer wargames hold the promise of legitimatizing the whole field of conflict simulation. Wargamers, in my experience, are not frustrated generals, snipers, or fighter pilots. They are intelligent people who enjoy competition, who prefer less abstract conflict simulation than is offered by chess, and who have a significant interest in history. Good designs, like *Guadalcanal Campaign*, teach logistics and goal-oriented planning as well as quite a bit of history. As computer owners learn that a good wargame is not just a body-counting contest, I'm wondering if we might not see even some additional expansion into board wargames because of some of the unique features they still have to offer.

A quick survey of current releases in computer wargames indicates that designers are exploiting the limited intelligence and solitaire capabilities of the computer quite well. The ability to keep enemy units hidden until actually spotted by a friendly unit makes all the difference in the world in a game like *Computer Ambush* when it is compared to a similar type board wargame like *Patrol*. You've got to be much more careful about the movement of your men when you're not sure just exactly where the enemy squad is located. Computers provide a quantum leap into realism with this type of simulation. The solitaire capabilities of almost all current computer wargames (along with "save game" features) also provide great advances over board wargames. No longer must you set aside one full day with your opponent, and then rush the last few turns because the table has to be cleared for dinner!

One potential benefit of computerization has turned into a mixed blessing. The computer knows the rules of the game and won't let you break them. It also performs the calculations required for combat and movement. These facts seem to contribute to a weakness in the documentation of some computer wargames. Rules are often presented in a cursory manner, without examples or discussion. The feeling seems to be that you'll learn the rules as you go, especially when you try to break one. (I do hate those rude noises that some games make when rejecting an illegal order!) Combat algorithms are often shrouded in mystery. Typically, the rules give general guidelines as to which features influence combat results, but optimized tactics can't be formulated without knowing a little more about the importance of each factor. The problem with the "learn as you go" outlook is that everyone has a "frustration threshold", and complex, computerized simulations without good documentation are right on the ragged edge (especially with novice game players). Understanding the rules and combat algorithms allows strategies to be developed for winning play (whether or not these strategies are historically

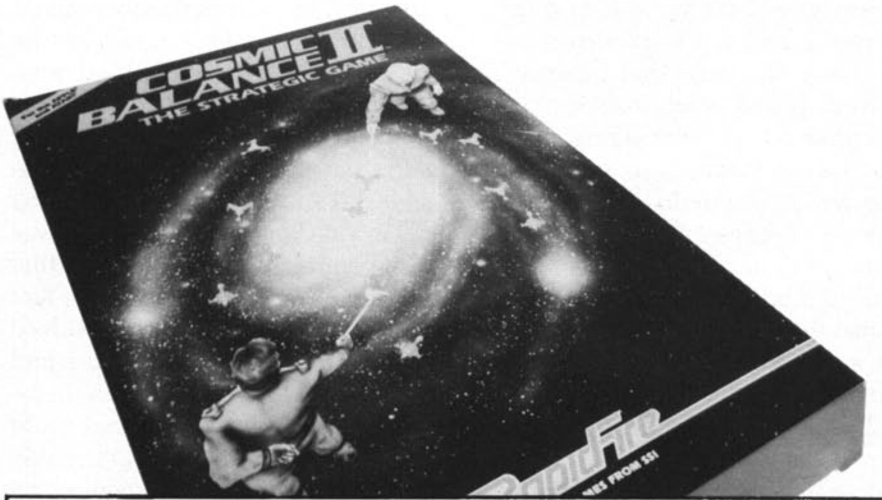
sound is a function of the design quality). If the rules presentation is incomplete, there is a risk that the player will not learn to play as well as possible, or that he will never know why he consistently wins or loses.

I hasten to add, that not all computer wargames are devoid of explanations, examples, and other aids. Many provide help or are really self-explanatory. Perhaps if software companies formulated some minimum standards for documentation, the quality would be more consistent. Another approach to greater understanding and enjoyment of the game would be to include a "tutorial mode" in a wargame. A program with solitaire capabilities must be able to evaluate game situations, and ought to be able to recognize when a human player makes an obviously bad move. In tutorial mode, the program could point out bad moves (and also good moves) either during the game or in a post-game critique. Some analysis of the game after it is completed would also be particularly appropriate; one thing that I dearly miss from board wargames is the after-dinner rap session where you finally find out exactly what your opponent was trying to do throughout the game. I have played several solitaire computer wargames where I had no idea why the computer moved units where it did or how in the world it was attempting to achieve the objectives of the game. When I won, I didn't know whether I had defeated a "random move generator" or had somehow out-maneuvered a masterful trap that the computer was trying to spring on me. Here again, a post-game critique (with the computer commenting on its own performance) would be most enlightening.

One fact about computer wargames which I've noticed is that they are generally the products of only one person who has both designed the game and programmed it. In view of this fact, the wargames published thus far are truly remarkable. But, I wonder if great strides couldn't be made by a two man designer/programmer team (something like the designer/developer teams so common in board wargames). The potential is apparent by looking at *Computer Ambush*. It was a fine game in its first edition (that is, it was a fine design); but the fact that the second edition involved mainly programming changes and resulted in a forty-fold increase in execution speed illustrates what could happen if design and programming functions were each executed by specialists. While there is still untapped potential, you can't fault computer wargaming for its current "state of the art". The games are already side by side with board wargames in design concepts and sophistication. If you haven't played a wargame before, check with your local software dealer for an entry-level title and try it out. I'm betting that you'll like it! ■

Review & Analysis

James A. McPherson



NAME:	**Cosmic Balance II**
TYPE:	**Space War-Game**
SYSTEM:	**Apple II/ Atari 400/800**
FORMAT:	**Diskette**
#PLAYERS:	**1 or 2**
AUTHOR:	**Paul Murray**
PRICE:	**$39.95**
PUBLISHER:	**Strategic Simulations Inc. Mountain View, CA**



COSMIC BALANCE II, the sequel to the popular game **THE COSMIC BALANCE** is now available. While The Cosmic Balance (CBI) is a tactical game, Cosmic Balance II (CBII) is a simulation of strategic operations in an interstellar culture. You discover and colonize planets; establish commerce nets; allocate production to supplies, starship construction, and research; and order your starships to various missions.

SCENARIOS

The game provides five scenarios tracing the history of the human races' expansion through the stars. Each scenario is on a somewhat larger scale than the previous one — and each is harder to play than the previous one.

1) *Terran Expansion:* This scenario is for only one player. It has no conflict and it's sole purpose is to let the beginning player become familiar

Commerce Nets, important factors in CBII, consist of one industrial with the movement, economic rules, and how to "build" a commerce net. planet, two mining planets, seven farming planets, and a minimum number of cargo ships traveling between these planets to keep them active. You begin to build your net by sending out scout ships in the immediate or neighboring sector to discover new planets. You can discover three types of planets: Terran, Farming, and Mining. Industrial planets, a fourth type, are merely converted farming and mining planets. Conversion of a planet to industrial just uses more supply points. All planets must go through a period or steps of colonization. The industrial planets take eight turns, the longest, and the farming worlds only take two turns. There must not be any gaps in these steps. If for any reason you cannot supply your colonies they will deteriorate. Once you have the prescribed number of planets out of colonization and into what is called the active phase you are ready to start your commerce net. The commerce net is started by sending cargo ships on commerce missions. There is a minimum number of ships that must go on these missions in order to keep the nets active. In addition, once the commerce net is in operation it becomes self-sufficient and no longer needs supplies. In fact for every cargo ship on a commerce mission above the minimum and below a maximum there is generated resource points that are used to procure supplies, ships, or research. It must be noted that these economies are fragile. If one of the planets in the net is captured, bombed, or for any reason reduced below active status, then the net is destroyed. Each planet left must immediately be supplied by ships or they too will begin to revert to "discovered" (the original undeveloped status).

There is one additional note. Terran planets are self-sufficient. They are not part of a commerce net.

Once you learn how to establish commerce nets you are ready to go onto the more advanced scenarios.

2) *Colonial Wars:* In this scenario you get your first taste of conflict. You begin with a commerce net and some ships and your opponent has a terran planet and some active planets. You win against the computer if you bring Terra to an inactive status. You lose if all your planets go inactive. You only have 10 turns to complete this scenario.

You learn quickly that the enemy doesn't sit back and build up his strength. The first few times of playing this scenario found my planets captured or reduced to rubble by the enemy in no time at all. You must act swiftly to gain the advantage. I began

attacking supply ships since I felt I did not have enough firepower yet to attack Terra, and I wanted to hinder all attempts at setting up a commerce net. I also tried to beef up my defences at every opportunity given me by my limited resources. Every time I have won this scenario its been because I have some planets active, not because I have reduced Terra to an inactive status. While I have not tried this approach, I have been told that it is better to invade Terra, as opposed to bombing it.

3) *First Contact:* In this scenario you have three commerce nets plus Terra and the enemy has four nets in an adjacent sector. Your objective is to prevent your own economic collapse for ten turns. The enemy significantly overpowers you in ship firepower. I have found that no matter what I do, I just end up barely surviving after the ten turns (Which by the rules is winning, isn't it?) My general procedure has been to attack the commerce nets and to strengthen my defenses against the heavy attacks.

4) *Rebellion:* In this scenario, you have three sectors under your control plus one sector that is inhabited by you and the enemy *(sector B)*. The enemy also has two other sectors. Your object is to establish a commerce net in sector *B*.

My approach to winning this scenario was to use all of my sectors to provide ships for sector B's conflicts. You must do all of this while maintaining the other sectors. This was the first scenario that really began getting involved for me. For instance, each sector has a maximum of 40 planets, so that between all parties we were manipulating 240 planets worth of instructions.

5) *The Final Conflict:* In this scenario every sector except one is involved. That means 15 sectors or 600 planets. The sectors are evenly divided (OK, our side does control one more sector then the enemy). This is an all out war and it is the one scenario I have not yet completed.

6) *Creating A Scenario:* You can definitely spend a lot of time playing the other scenarios. But what if you want to create a game scenario of your own? This option allows you complete freedom in designing your own game. You can build a fleet of ships that is undefeatable and scour the galaxy or be hopelessly outnumbered and rely on your wits.

Maps and Displays

When I first read the instructions I was overwhelmed with the amount of detail involved. But, the screen and map displays simplify the procedures and help you accurately keep track of everything that is happening. The only thing is that these maps and displays do nothing to make the game interesting. You are constantly manipulating numbers as if all you are actually doing is a balance sheet at the end of a month. Even the names of the different ships are reduced to two-letter abbreviations.

Here are the screens:

1) *The Map:* The map is divided into 16 sectors, each of which contains about 40 usable planets. Control of the sectors is indicated on the map by the color of the sector. Each sector is designated by a letter. This is the only portion of the game that is helped by a color tv or monitor. However, I have no difficulty using a B&W monitor.

2) *The General Display:* This gives you the most complete display of what is happening within a sector. The information supplied on this screen includes how much is in the supply pool, any cargo currently being transported, lists of ship types and the number of each available for missions. There is even a table at the bottom of the screen which shows the number of each class of planets for each status and the number of enemy planets in the sector. This is a busy screen and you can understand the need for abbreviations.

3) *Ship Display:* This is a table of all ships currently in the active sector. Across the top is a list of the types of missions available. Along the left margin is a list of the types of ships. By cross-indexing you can tell how many ships of each class are of any given status.

4) *Planet Display:* This table exactly details which friendly planets are in the active sector, and their status (those being *active, ecolapse, colonial,* and *discovered*). This table is set up like the ship display.

Ships

There are 15 different classes of ships and a standardized planet. Each ship class has three basic attributes; *size, range,* and *cargo capacity*. Each also has a standard set of combat values.

There are 5 sizes of ships, each approximately twice the mass of the previous one. These are the *Corvette, Frigate, Destroyer, Cruiser,* and *Dreadnought*.

Each ship is rated under all of these categories and its effect in battle is determined accordingly.

General Comments

CBII is sold under SSI's Rapidfire series. After playing the game one may ask why? The connection is that if you so desired, CBI could be used to fight each battle in CBII. The two can be used together to play a campaign. But keep in mind that CBII, itself, is not as "active" as the other Rapid Fire games. [Ed Note — *We like to think of CBII as "Visicalc in Space".]*

An in-progress game can be saved. However, in order to save a game you must give it a specific name that must always begin with "scen". I found that this was sometimes overlooked.

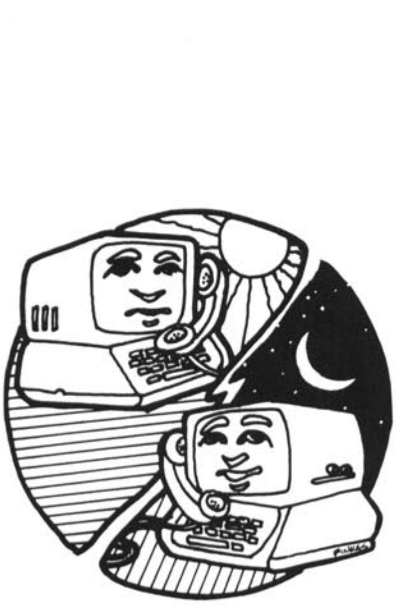
You can either play with another human or against the computer with four difficulty ratings to choose from.

Don't colonize planets before its really necessary. Keeping extra planets active is costly.

Conclusion

CBII is a very complex game with many details and intricacies. Some game-players will think this is enough, but I felt that CBII was too much like working on a balance sheet and watching the numbers change. CBII's strength is not as a stand alone game; it is rather, as a campaign companion to CBI. ■

TELE-GAMING



Patricia Fitzgibbons

Logging you into the guest book. Please wait....

Greetings, adventurer! You must be either very courageous or very foolhardy to visit these premises. But, never mind! The orcs will be so pleased to know you're here. They were terribly disappointed when our last guest got away. We really shouldn't make them wait any longer, should we? Prepare to enter the labyrinth....

You are standing before an intricately carved iron door. The door is slightly ajar. If you look closely, you can see something of a pattern there, cut into its surface. Your command? READ CARVINGS

With great effort (the light is very dim), you are able to decipher the following words: "Restricted Area — Keep Out!" Your command? ENTER

As you cross the threshold into the gaming room, the iron door slams shut behind you. Suddenly, a cloaked and hooded figure materializes in the center of the room. It gestures for you to approach. Then, in a rasping voice, it says: "You may now play a game or download one for later enjoyment. What is your pleasure, sojourner?" Your command? PLAY And, play you shall...once you've learned the groundrules.

In my last column, I discussed private electronic bulletin board systems (BBSs) which provide fantasy role-playing games and/or gaming hints. This time, I'll be listing a number of BBSs where you can find computer games for online playing and/or downloading.

Playing a computer game online is similar to playing a purchased game on your home computer. However, in online gaming, you use your modem to connect, via telephone, to someone else's computer. If a BBS offers online games, you can select a title and play by responding to the other system's prompts. Generally, the games available are in the public domain. Most of them are imaginative, fun, and free (some BBSs do charge small membership fees). As always, remember that the typical BBS is privately run; call again if the line is busy or doesn't answer. Of course, occasionally a system is shut down by the owner because he or she decides to discontinue the BBS. Here are brief descriptions of eight excellent single-player (one caller at a time) gaming systems:

Dragon's Lair (Long Beach, CA) — (213) 428-5206: The Dragon offers fifteen adventures, including "Dutchman's Gold" and "Sabotage." There are also seven simulations, such as "Nukewar" and "Lunar Lander." When the system answers, type the password DRAGON. A one-hour playing limit is in effect here.

Big-Top Games System (Milwaukee, WI) — (414) 259-9475: The Ringmaster (Neal Patrick) provides the caller with nine adventures, including "The Wizard's Castle" and "Jungle." There are also eight other games, ranging from "Civil War" to "Blackjack." The system is available evenings and weekends only.

Nessy (Chicago, IL) — (312) 773-3308: Nessy is an adventure game in itself. Start in the Main Room by reading the "Help Book." Then, just explore — watching out for the carnivorous ferrets! — until you reach the Game Room. There you will find nine games, including text versions of Phoenix Software's "Adventure in Time" and "Queen of Phobos." The hours vary, but the system is usually online from ten p.m. to eight a.m. daily.

Drucom (North Wales, PA) — (215) 855-3809: Dru (the "Sexy SysOp") presents five games in the arcade section. You can try your hand at "King Tut," or, perhaps, "Atlantis." Page the SysOp for a password to view the Adult Menu.

Signature Software BBS (El Segundo, CA) — (213) 675-1001: The Game Room is closed from six p.m. to ten p.m. nightly. At any other time, you can battle Klingons in the classic "Star Trek," or hone your skills with simulations of "Blackjack" and "Othello."

Lethbridge Gaming System (Alberta, CAN) — (403) 320-6923: This Canadian BBS offers nine online games, including "Wumpus," "Casino," "B-1 Bomber," and "Pyramid 2000." When the operator is present, you can play "Dungeons and Dragons (TM)" or "Traveller (TM)" as well.

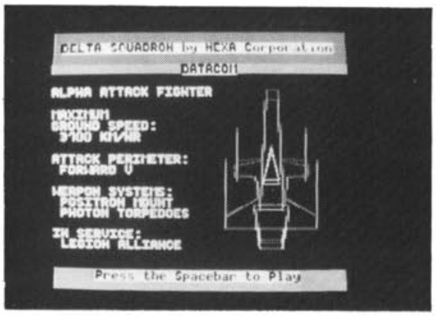
Commnet-80 (Akron, OH) — (216) 645-0827: In the arcade area, you'll find "Isle," "Dogstar," or "CIA." Note that there is a thirty-minute limit per call.

Disk Byters (Union City, CA) — (415) 489-0388: Four online games are available here: "Thunder Road Adventure," "Dawgbite," "Othello," and "Scramble."

Continued on p. 50

DELTA SQUADRON

James A. McPherson



NAME:	**Delta Squadron**
TYPE:	**Strategic Space War**
SYSTEM:	**Apple II/64K**
#PLAYERS:	**One**
AUTHOR:	**Gilman G. Louie**
PRICE:	**$39.95**
PUBLISHER:	**Nexa Corp.**

Delta Squadron (DS) is a strategic space war simulation. You, as the Legion Alliance Squadron Commander, must direct up to 34 small one or two seater fighters down a long trench and destroy the Cetusites Main Power Induction Inverter. This will result in the destruction of their station (Does this sound familiar to you? I hope so). You must assign some ships to fly cover while others are set for on-course targeting. The Cetusites will use their own Tactical and Tactical Command Fighters as well as ground defense systems to prevent you from accomplishing your mission.

Delta Squadron has nine scenarios with a save option so that you may quit your game and come back to it later. Each of the scenarios are color coded to designate the average playing time, which can be from one to three hours on the average.

In all of the scenarios you must enter or already be in the trench to ultimately be able to launch your photon torpedo down the MPII (Main Power Induction Inverter) and win the game.

Data is available on every fighter whether it be friendly or enemy. This data is very important in your strategy. For instance, pilots are ranked according to their flight experience and length of service. The more experienced the pilot, the more accurate their targeting skills and greater their evasive abilities during combat situations. It is wise to attack the enemy with a pilot of at least the same rating or higher.

To win, you must navigate an on-course Alpha or Beta fighter down the trench and land directly on the MPII so that the ship can fire it's photon torpedo on the Inverter before running out of time. There is a 20% chance that the shot will fail so have some backup at all times.

As always, there are many ways to lose. Have all of your ships shot out from under you, you lose. Run out of time, you lose. Have no on-course Alpha and Beta fighters, you lose. Miss the target, you lose. Fun, isn't it?

This game has it all and, if I haven't mentioned it already, you need a color television or monitor to play. Well, you could possibly play with a black and white monitor, but you would have a difficult time telling the good guys from the bad. It also wouldn't be very enjoyable.

As I was saying, there are 3-D animated graphics throughout the game. In the beginning, you see all the fighters in animated 3-D. When you fire on an enemy fighter you switch to an animated 3-D viewscreen and you fire at the fighter through crosshairs. If you fly over a turret you get to see it take potshots at you. If there is a hit your fighter blows up. When and if you get as far as the MPII you again switch to 3-D and watch the photon torpedoes go down the tube (if your shot is good).

The finale is watching the Cetusite Satellite blow up. You did make it to the end didn't you?

Delta Squadron is a strategic space war game for those people who are tired of the text and colored-grid games. My only request is that the next time, *Nexa* incorporate the fancy graphics into the actual game where the player can interact with them, rather than have to sit back and watch.

The program is a bit slow due to it being a 100% graphic format but, after a few games, I forgot about it. This was because of the ease of playing the game with paddles. ■

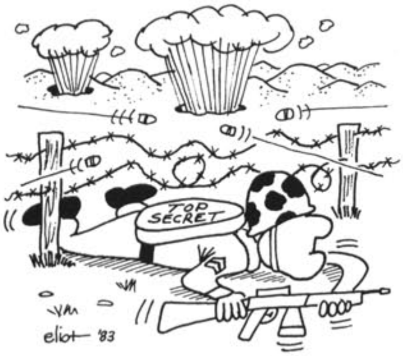
CHIP & FERB

by Mark Eliot



DISPATCHES

Insights From the Strategy Game Design Front



Dan Bunten
of Ozark Softscape

Virtually all simulation games are strategy games. All strategy games are *thinking* games. These are the games that tickle the space between your ears.

Although this column was previously devoted to the design elements of "real-world" simulation games (and called *Real World Gaming*), I would like to broaden our horizons a bit. The dictionary defines strategy as:

a) a careful plan or method, b) the art of devising or employing plans or strategems toward a goal.

These definitions imply the use of intelligence towards reaching an objective. This is what makes human beings unique among the animal kingdom. So it is not surprising that you and I should find it entertaining to stimulate our brains by playing strategy games. What is surprising, at least to me, is the number of people who seem to prefer "mindless" games of eye/hand coordination. Arcade games are still big winners in the sales race. They outsell strategy games by at least two to one, and, at times, by as much as ten to one. This is particularly depressing to a strategy game designer. A couple of years ago when I was faced with these discouraging facts (that translated into discouraging financial situations), I found I had three options:

1) *I could go back to work at a regular job.* Engineers still get paid good money but it's just not the kind of thing I want to do with my life. 2) *I could try to write action/arcade games.* But I just don't have a "feel" for that type of game. 3) *I could learn some lessons from arcade games and maybe improve my games in the process.* This is the option that I've chosen (although the jury is still out as to whether I will be successful enough to avoid the first option).

So, what is there to learn from arcade games? Typically, they employ a simple input mechanism. A *joystick* and a *fire button* are all most coin-op machines have. Nothing could be easier or more familiar to use. I am certain they didn't leave the keyboard off their design because of cost. It's just too complicated for "regular" people. The fact that the most sophisticated personal computer on the market uses an equally simple device is no coincidence either. The "mouse" in Apple's new "Lisa" computer is the result of extensive human engineering. It is the main device for user input. So how can we take advantage of all this design effort and apply it to strategy games? The answer: use a joystick as your input device.

This is easier said than done. Joysticks work fine for moving an animated creature against a background, but strategy games consist of much more than a few objects on a single screen. The input required is much more complex than simple directions for movement. Many strategy games communicate in abstract concepts. They provide a lot more options to players than arcade games do. Thus, the simplest solution for a design needing a variety of inputs has always been to use the *keyboard*. The alphabetic keys provide 26 options by themselves. If whole words are used, then the choices are almost infinite. However, very few people are as comfortable with a keyboard as with a joystick. Most of us have to "think" about what we're doing when we type in a command. Although strategy games are supposed to be *thinking* games, I don't believe players should have to *think* about "how" to choose a certain strategem. They should only have to decide what choice they want to make. The simpler the mechanism for selection, the more the player can concentrate on what is being selected.

While there are a number of games that have been designed using this idea, there are still many more being published that force players to learn "command keys" or even whole "command languages". Bill Budge did an excellent job with icons (graphic symbols) and a joystick in his *Pinball Construction Kit.* Chris Crawford broke new ground in creating a wargame that includes all the realism of the best of that genre but communicates only through a joystick. FreeFall Associates, in *Murder on the Zinderneuf*, achieved the amazing feat of allowing players to question suspects in subtle ways using only a joystick. It is obviously possible to make strategy games that are easy to play. It just requires better design from game designers.

Since a joystick can only indicate direction, the designer must find some way to present the options available to the player in a "spatial" arrangement. It makes no difference if the items for consideration are text words or graphic icons. Just so they have a positional framework and some way to highlight the current choice. For instance, to move among text options on a screen you could make the current position "inverse"

and you could move the selection to the item above if the joystick is moved up. All the designer need do is define how the options are related according to joystick movements. Then a simple push of the fire button will activate the player's selection.

MAKE	TYPE
Mine	Shooter
Bunker	Comndr
	Missile

The lines above represent part of a game I designed called *Cytron Masters*. In the case shown here, the player selects which type of unit to make. When this is first printed on the screen, MINE is in inverse text. If a player pushes right, SHOOTER is highlighted and MINE returns to normal text. Pushing the joystick down from that position will place COMNDR "under the cursor". If the player continues to push down, then the cursor will move to MISSILE. (A timing loop tells how long the player has pushed.) Only pushing up from MISSILE will cause anything to happen. Although the design for the way the cursor moves could have included "wrap-around", I thought it was too disorienting.

What if you want more options than the available screen space will allow? Then you scroll the screen, adding new items to the bottom as the joystick is moved down (or the top if up). Or you can allow the player to "flip screens" as one option on the current screen. In *Cytron Masters* I was looking for a way to allow two players to simultaneously control armies of 50 units each while the armies were still moving on the screen. Something like Crawford did in *Eastern Front* (where you position a cursor over a unit on the map) which worked fine for directing individual units, but I wanted the players to be able to create new units (of 4 different types) at variable locations, organize armies under commanders, and occasionally fire missiles at opposing massed fronts. This required several menus on a three-way split screen (with most of the screen being taken up with battlefield). The use of a joystick for each player in the Atari version (and a paddle on the Apple) made this process possible as well as playable.

This points out one of the other advantages of a joystick — multiple players. Putting two or more players on a keyboard is almost ridiculous. There just isn't enough elbow room. An even more significant advantage of joystick input is the fact that the player cannot make a mistake. It simply is not possible to input an incorrect command. With a keyboard, the designer must make provisions for illegal keys or commands. Since what is a legal entry depends on what is being asked by the program, this is no small task. I have played games where you could type a letter for a major option. Then you would be given some broader choices that required typing a word (that you had to look up in the manual). And then you would type a number for an amount. If you made an error on the amount you specified, then you had to start the process all over. Although the designer could have added more sophisticated error checking, I can sympathize with his problem. Flagging bad input can be a real bear! With a joystick design you only show "legal" commands. You can even control numeric input better. If, for instance, you want the player to tell how many of something, you start out with the minimum value on the screen. You tell the player to push his stick "up" for more and "down" for less. As he pushes, you reprint the value displayed. He can press his button whenever he has the right amount. You just don't let the player push past the top or bottom limits. This is a lot cleaner than waiting for the player to hit "return" before you can check his error or warn him.

You can get more elegant by adding acceleration to your joystick routines where there is a chance the player may have a lot of ground to cover. This is essential on Atari or Commodore joysticks (since they only have switches not potentiometers). To control the speed of the joystick (or cursor) you would keep a total of how many times the program has looked at the stick and found the same direction. You could use this number to determine how fast to move. To slow the speed, the player would only need to let off his direction for an instant. With a few enhancements, this technique could give the player accuracy for short "fine" movements and speed for long "coarse" movements.

The use of a joystick as the main input device in a strategy game can make a complex game much more playable. This requires that the designer do the work and let the player have the fun. But that's what they pay us for, isn't it?

Dan Bunten is the author of COMPUTER QUARTERBACK, CARTELS & CUTTHROATS, *and* CYTRON MASTERS *all available from Strategic Simulations. He is now a member of the Ozark Softscape group that wrote* M.U.L.E. *(a family game for the computer) which is available from Electronic Arts.* ■



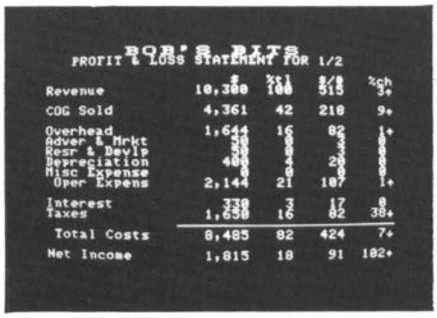
the learning game

Bob Proctor

CARTELS & CUTTHROATS

As I sat reading my back issues of Computer Gaming World the other day, I realized that CGW has never had an in depth review of Cartels & Cutthroats. There was a brief overview back in Vol 2, Number 4 but that was over a year ago and before CGW had pictures of what the screen looked like. Such a great game deserves more. It would get my vote for the best adult educational game for any microcomputer and I wouldn't want regular readers of this column (if there are any!) to overlook it.

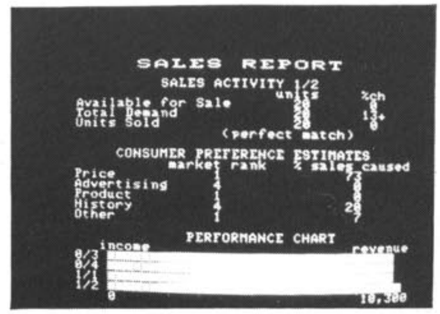
Each player in Cartels & Cutthroats is the President of a manufacturing company. There can be up to six companies and the computer can control up to five of them. This makes it possible to have more competing firms than you have players. For example, you can play solitaire against three other companies, which is more interesting (and more realistic) than having just one other. Each turn of the game represents three months of business. A turn consists of reviewing the reports of how your firm did in the previous quarter and then making plans for the coming quarter. The first photo shows the Profit and Loss report of



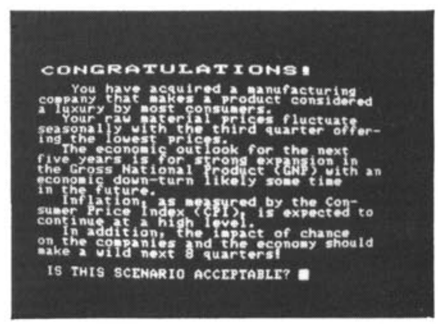
Bob's Bits for the second quarter of the first year. The most important numbers are, of course, those on the famous "bottom line". In this case, they show $1,815 total profit for the quarter, which is 18% of Revenue. You can also see that I'm making $91 per unit sold, which is a big 102% increase over the previous quarter.

If I choose, I can examine other categories in the same manner but this is not necessary to enjoy the game or even to do well at it. Advertising & Marketing, Research & Development, and Interest are the three which you have the most control over. Cost Of Goods Sold (COG), the biggest cost, is made of raw material cost and labor. These costs cannot be avoided, but your decisions can affect them. For instance, you can buy extra raw material when it is cheap and avoid paying high prices later. And when your workers ask for more money, you can say "No!", which keeps labor costs down. The longer you keep denying their request, however, the more likely it becomes that your factory employees will strike!

Besides the P&L Statement, there are four other reports. There is the traditional *Balance Sheet*. There is a *Sales Report* (photo #2) which shows the demand for your product, and how you rank in the five categories



that buyers use to decide which product to buy. Notice, for instance, that Bob's Bits is number one in Price (lowest) and that 73% of the people who bought BB (as opposed to one of my competitors) gave this as the main reason for their selection. The relative importance of these categories may vary. Price is very important when your product is a necessity — something that people have to buy — but it is much less important when your product is considered a luxury. The reasons that buyers choose one product over another also depends on whether the economy as a whole is doing well or poorly.



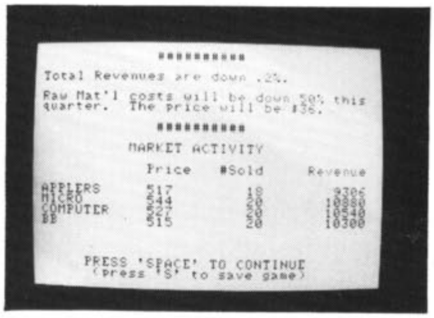
These factors are established at the beginning of the game. Photo #3 shows the first screen you see after you decide how many players and how many turns. It tells you what kind of product you have, what the situation with raw materials is, what the economic outlook is, and how big a role luck will play in the game.

If you don't want to play the scenario which the computer has chosen, you can either have the computer choose another at random or

you can select each factor yourself. Raw Materials, for example, can be scarce (in which case you must outbid your competition or do without!) or they can be abundant. They can also be subject to transportation strikes, which makes it crucial to have some stockpiled when the source dries up! Likewise, Inflation can be anything from non-existant to rampant. The impact of chance can also be controlled. This determines how much variation there will be between predictions and actual events. There are four levels from which to choose, going from no variation to the wildly unpredictable!

Okay then, you know what kind of company you have and you know a little about your competition and the market. How do you convert this knowledge into a plan? Forming a plan consists of answering seven questions. How many units of raw material do you want to buy? How many units of product do you want to make? What price will you sell them for? How much will you spend on advertising this quarter? How much will you spend on research this quarter? How much money do you want to borrow (or pay back)? And, finally, how many factories do you wish to buy (or sell)?

Occasionally, there will be a special decision to make. These always show up as letters or memos attached to your reports. They may be a request for money from a charity, a chance to hire an outside consultant, a demand from the labor union, or a plan to automate part of your factories. You make these decisions with a one-letter response on the planning sheet. Of course there are no right answers; what works against one opponent may fail against the next.



Once all the plans are done, the computer quickly calculates the results (about 15 seconds) and displays them on the screen like a teletype. Photo #4 shows part of one; the top has news about general economic conditions. As you can see, Bob's Bits (BB) has done all right, and may be taking sales away from Applers, the other low-priced product, but the other two continue to sell very well at higher prices. Presumably, their product is heavily advertised or possibly it just has a good reputation.

What we don't know is how much of their revenue they actually keep as profit. This is important because that's how the winner is determined. It's okay to make half as much on each unit as long as you're selling more than twice as many! At the end of every four turns, you get to see the Annual Reports of your competitors to see how you stack up.

Hopefully, you already see how educational this can be. Maybe you even learned something from my brief description. You learn how businesses do their accounting, you learn some of the theory of the free enterprise system, and you learn a little about how to manage a small business. You may also gain insights as to how businessmen feel about inflation (will YOU hesitate to pass it on to the consumer?), who "wins" in a labor dispute, and exactly what is the *real* value of research.

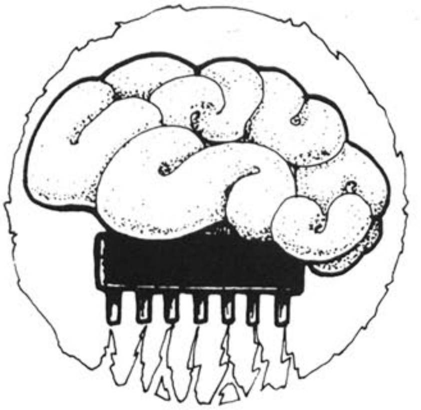
If you want to share this experience with larger groups, you can split them into teams and play the option that prints the reports on a printer. Give each group a fixed period in which to check results and agree on a plan. This will bring group dynamics into play and add another valuable (though not always pleasant) lesson to the event.

Yes, the game does have limitations. For instance, you can never have more than one product whereas most makers of cars, stereos, computers, etc. have models to fit many tastes and pocketbooks. Or, if you need more money to build a factory, you can't issue bonds or stock, you can only borrow it. So, it's a bit simpler than the real world, but you won't notice when you're in the middle of a price war. More likely, you'll be hinting loudly that if prices don't stabilize, NOBODY will be making a profit. Oh yeah, there's no law against price fixing either . . .

CHIP & FERB

by Mark Eliot





THE SILICON CEREBRUM

by Bruce Webster

HEURISTIC SEARCH
PART 2: BREADTH-FIRST SEARCH

RECAP

Last issue, we talked about using heuristic information to help find solutions to computer problems. We gave the example of tracing a path from one location to another on a hex grid by the following method:

(1) Find the six hexes circling our present location.
(2) Eliminate any hex already in our current path or through which we cannot otherwise move.
(3) Of those remaining, pick the one closest to our goal.
(4) Move to the hex selected.
(5) If we are in the goal hex, stop; otherwise, go to (1).

As we saw, however, this method won't necessarily find the shortest path. In fact, in many cases it won't find any path at all. So, we need something else.

BREADTH-FIRST SEARCH

An alternate solution is to use a *breadth-first* search. The best discussion of this that I've found in Nilsson(71), though he gives a more general version in Nilsson(80). Our approach will require a copy of the hex map (called *TRACE)* that will accept the values *0* through *7*, where
0 = hexes we can move into,
1..6 = hexes that we've already moved through, and *7* = hexes we can't move through at all. We'll also need to keep a list of hexes to be looked at (called *OPEN).* Given that, here's our approach:

(O) Put the starting hex on OPEN and set its location in TRACE[start] = 7.
(1) If there are no more hexes on OPEN, then no path exists, so quit.
(2) Get the first hex in the OPEN list, called *H*.
(3) Examine the six hexes adjacent to *H*, called ADJ (*n*) for *n* =1..6.
(4) If ADJ (*n*) is the goal hex, then quit.
(5) If TRACE[ADJ (*n*)] = 0, then set TRACE[ADJ (*n*)] = *n* and put ADJ (*n*) at the end of the OPEN list. Otherwise ignore ADJ (*n*).
(6) When all 6 hexes have been examined, go to (1).

Figure 1 shows the map that we ended up with last issue. S represents the starting hex; G, the goal hex; and X, hexes through which we can't move. Let's see what kind of path this algorithm will find.

To start with, we put S on OPEN, and then immediately pull if off to look at the hexes adjacent to it. All six hexes are clear, so all of them are placed on OPEN, and TRACE gets set to the appropriate values. *Figure 2* shows what our map now looks like.

We now have six hexes on OPEN, so we pull these off, one at a time, and repeat our steps above. When we've dealt with these six hexes, there are now 12 new hexes on OPEN, and *Figure 3* shows what the map looks like now. The process continues until we finally hit the goal node. *Figure 4* shows the state of TRACE when we reach our goal.

TRACING THE PATH BACK

Now that we've found the goal hex, how do we trace the path back to the starting hex? Well, we need the function INVADJ (*n*), which is the inverse of ADJ (*n*). What does this mean? Suppose we're at hex *H*. If we move to any hex ADJ(*n*), *n* = 1..6, then *H* = *INVADJ* (*n*). More simply put, INVADJ allows us to go back to where we came from. Incidentally, INVADJ (*n*) = ADJ(1+((*n*+2) MOD 6)).

Okay, once we've got INVADJ, we can find our path from the goal hex to the starting hex using the following steps:

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 - - - - - X G - - - - - -
- - - - - - X - - - - - -
 - - - - - - X - - - - - -
- - S - - - - - - - - - -
 - - - - - - - - - - - - -
- - - - - - - - - - - - -
```

Figure 1

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 - - - - - - - - - - - - -
- - - - - - - - - - - - -
 - - - - - X G - - - - - -
- - - - - - X - - - - - -
 - 5 6 - - - X - - - - - -
- 4 S 1 - - - - - - - - -
 - 3 2 - - - - - - - - - -
- - - - - - - - - - - - -
```

Figure 2

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Figure 3

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Figure 4

Continued on p. 48

ATARI ARENA

Allen Doum



ELECTRONIC ARTS

As mentioned in David Long's article, Electronic Arts is an "all-star" group of independent designers, marketing their games under one logo. But, it is not the "stars" that are making the impact; it is the games.

Pinball Construction Set was discussed here last issue. The graphic and sound limitations of a converted Apple game are the only weak points in this magnificent piece of software.

ARCHON (see the review in this issue by David Willis) is a chess-like game in which combat is resolved on an an arcade-like battlefield. While neither the "chess" or "arcade"portions of the game would stand on their own, the combination is unique.

As most wargamers have long known, mastering the tactics of a game can be far more important that mastering the strategy. The better arcade players, likewise, can dominate in ARCHON. The board game has another weakness. Instead of defining geometric "chess moves", the Icons have been given "movement allowances". This, plus the uncertainty of the battlefield, means that the *combination play* tactics in chess is largely missing in ARCHON. And, since so many pieces can "fly" over other pieces, *positional* play is not very sophisticated either.

ARCHON is a good first step towards what will be an exciting new class of game. Its play, despite the lack of depth or variation that will be possible, is fast moving. But watch this space for future developments. The basic concept is too good to ignore.

MURDER ON THE ZINDERNEUF is a mystery game for those people who don't have time for a twelve-hour deadline. Instead, the player, (impersonating one of the worlds great detectives,) has only twelve minutes to crack the case. One of the sixteen passagers on the airship Zinderneuf is missing, and since the ship will dock at Lakehurst, New Jersey in those 12 minutes, there is not a moment to be wasted. The player (using a joystick) guides his on-screen counterpart through a vertically scrolling rendition of the cabin deck, searching the staterooms for clues, and questioning the remaining passengers. He may question (in any of several styles) or accuse any passenger he meets, but if he accuses without proof, that passenger will not talk to him again.

ZINDERNEUF is the first game, to my knowledge, that requires the GTIA graphics chip. (It can be booted with only the CTIA, but the screen is virtually unreadable.) This allows perhaps the best looking "floor plan" in computer gaming. Without "breaking" the game, it is impossible to tell how much variation is possible; although there seems to be a great deal. An experienced player will more easily recognize the difference between a standard answer about a character and a possible clue, however.

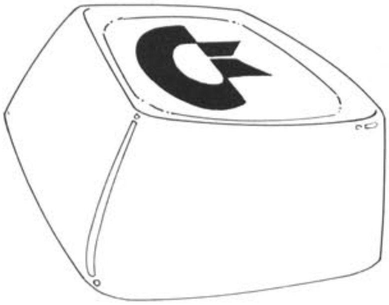
The mechanics of **MULE** were discussed in last issue in the review by Edward Curtis. But what really sets this game apart is its graphics. Virtully every graphic "trick" available has been used to enrich this game. A great deal of thought was obviously put into the "human engineering". The auctions, in particullar, give a player the choice to buy or sell, to set the price of an item and even collude with other players entirely by using the joystick, while the on-screen display clearly shows the effects of these descisions. All in all, a superior game.

Describing **WORMS?** with words is far more difficult than showing it to someone. Nonetheless, the attempt must be made. The playfield of WORMS? is filled with dots, each one of which would be at the center of hexagon. Starting at the dot in the center are from one to four worms. As each worm moves to an adjacent dot, it draws a line connecting those dots and no worm may move where a line is already drawn. Each worm is a different color, and as it moves the dots and the lines connecting them are changed to the color of the last worm at that dot. When all six lines to a dot have been drawn, the last worm there claims that dot and gets one point. Also, worms die when they become trapped at a dot with no exit route. Due to the mathematics of the game, pairs of worms will kill each other, while an odd worm will die at the starting dot.

But how do the worms know which direction to move? Each worm is programmed to move in a given directions, depending on which lines are already drawn to the dot it is on. For example, a worm that for the first time is at a dot, with only a line drawn to the left, has a choice of five directions to move. If it moves to the right, then for the rest of the game it will always move to the right in that situation. There are four ways for a worm to "decide": NEW, AUTO, WILD, and SAME. A *New* worm will stop at each new situation and let a player decide, using a paddle. An *Auto* worm does the same, with the instructions coming from the computer. A *Wild* worm is randomly pre-programmed, and *Same* indicates that the worm will repeat its last program. It is also possible to have a worm "sleep" through a given game, and still have it remember its last program at a later date.

WORMS? can be played competively, either by teams or individuals or can be used solitare as a pattern drawing puzzle. Its sound

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THE COMMODORE KEY

Commodore 64
Roy Wagner

Welcome again to the Commodore Key. This time we are going to look at public domain games and look alike games. The first is relatively cheap to buy and the latter is relatively easy to produce because the design has already been proven and the market has already been established.

Public domain games are most often available from users groups. With the popularity of the Commodore 64 (C64) user groups are forming rapidly everywhere. Usually starting with about five people, they quickly grow. Someone is usually designated disk librarian and they collect and categorize public domain software. The librarian is responsible to make available only that software that is in the Public Domain. If games are not in the Public Domain and they are copied for other than the original owner, that is an act of copywrite infringement, or more simply *piracy*.

Public domain games are usually made available for the cost of the medium upon which they are stored (tape or disk), a nominal fee for copying, and mailing. The cost is usually about $10, for which you get several games. Public domain games are also marketed commercially by companies. This is quite legal. Generally, the companies improve the original version and give full credit to the original author.

An example of this is the game **MONOPOLE,** which was originally written for the PET over a year ago by John O'Hare (writer a several of good public domain games). When the C64 was introduced, two fellows added color, credited themselves as the authors, and started selling their version for $25 (piracy of another kind!) John O'Hare has made his own C64 version available for $10.

A lot of good games are available in public domain, a lot of bad or mediocre games are also there, but the price is right. You generally find many adventure type games, some tactical, and few good arcade type games.

Another group of games usually available from user groups are those that have appeared in magazines. These are generally not considered public domain unless expressly stated by the author or magazine. They require the person who has a copy of it to own that issue of the magazine.

The second area to cover are games which imitate already popular original ideas. These games look and usually feel like the original. We have all seen games that look like **PAC MAN** or **CENTIPEDE** or **FROGGER.** Many of these border directly on or are examples of copyright infringement. These are often only cheap rip offs of a good and highly profitable idea. Others, though, are extentions and enhancements of the popular theme.

A legitimate version of the arcade game FROGGER is FROGGER (no need to create a clever new name!) from Sierra On-Line. If you enjoy the arcade version and want a copy at home for your C64, get this one and forget about any cheaper look alikes.

A game that extends the original limits of a good idea is *JUMPMAN* from EPYX. This game has similarities to **DONKEY KONG,** but honestly enhances the idea. There are 30 screens to complete, broken up into three levels of play (Beginner, Intermediate, and Advanced.) Each screen presents a different challenge that can be completed with the proper stategy. The speed of the Jumpman can be varied from one (fastest) to eight (slowest). At the slowest, even a four year old can run away from bullets. At it's fastest, watch out arcadian! Best of all, the top 20 scores and bonuses are saved to disk.

I hope that you now see that we have only begun to unlock the many areas of gaming available to the Commodore 64. Please feel free to write in and make any suggestions or comments to *The Commodore Key*, c/o Computer Gaming World. Until next time, good luck!

Vic-20
Dr. Johnny L. Wilson

THE COMMODORE KEY TO ARCADE ACTION:*Crossfire*, the best of the arcade games yet submitted is representative of the improving quality of the games available for the Vic-20. In fact, several of my friends who own old VCS systems are becoming increasingly jealous of what's available on the Vic-20. At first, they would question if there was any significant difference between "video games" and the computer games available for the Vic. Now, I can usually say, "Yes!" though it was not always so.

In the beginning, there were the Commodore games. The *VIC AVENGER* was actually **SPACE INVADERS** for the Vic, just as **RAID ON FORT KNOX** was a thinly discussed version of **PAC MAN.** Even companies like United Microware Inc. offered little advancement, since their *AMOK* was an even more primitive form of **BERZERK.**

Now, however, there is a very real difference between the VCS systems and Vic games. GRIDRUNNER (GR), by Human Engineered Software (see CGW 3.4) is a faster and more complicated game than CENTIPEDE. The first few grids seem to be a basic

version of CENTIPEDE, but one soon learns that the *Y-zapper* on GRIDRUNNER is more dangerous and harder to avoid than the *spider* in the "original" game. Not only that, but the bombing patters in GR greatly reduce the opportunity to use a rapid fire strategy with any success. The playtesters of GR wisely suggest that players fire more sparingly than in other arcade games.

GR is not the only game that penalizes the rapid-fire player. I immediately liked the bookkeeping system in PARATROOPER. My brother, a VGS fanatic, couldn't figure out why he would keep slaughtering the enemy Paratroopers, but lose the game. He had been taught by "video games" that there is a "free lunch" — that is, unlimited ammunition. Now, even the most inexperienced strategy gamer knows that that's not true, but "video games" tend to work on that principle.

Nick Dudzik changed that Philosophy by subtracting either one or two from your score, depending on the level of play, for every bullet used. PARATROOPER also uses the most delightful array of sound effects that I've heard in any computer game. It's hard to believe the detail put into the common situation where the paratrooper is separated from his parachute. The invader falls faster than the parachute *and* lands with a gross little SPLAT upon the ground. One soon learns to expend ammunition wisely and select targets carefully in order to score well in this game.

SEAWOLF (SW), a new entry from Commodore, offers a slight variation to the rapid fire strategy. In SW, each player's submarine has four torpedo tubes available. He doesn't reload until all torpedoes have been used. Then, the computer takes about five seconds to reload all the tubes. In this three minute timed game, it can make a big difference how the ammunition is used. If you attempt to set up a rapid fire pattern, you are likely to be in the loading phase when some of the faster, and thus more valuable, targets appear on the screen. By creating a game where the player must compete against the clock, ammo limitations, and another player; the designers have advanced another step from the typical U-boat shooting gallery game.

In CROSSFIRE, Sierra Vision deals with ammo limitations in a different way. As the defending ship patrols the city to rid it of the alien menace, it is limited to 25 shots. Near the center of the city grid are some "crosses," representing supply depots. The player must pass over one of these supply squares at an appropriate time in order to reload. Since the aliens are metamorphising as they are shot, and attacking with increasing speed and sophistication, just reloading can become an intriguing challenge.

Another game from Sierra Vision that addresses this factor is THRESHOLD. THRESHOLD takes the SPACE INVADERS/GALAXIAN genre into a new dimension. Not only do you have to keep track of a limited supply (in this case, your fuel supply), but the rapid fire strategy will heat up your lasers until they are useless. This encourages the player, even more than in other arcade games, to devise a different strategy. I found that the best strategy is to stay to the extreme left or right of each screen and move my ships in for quick sniping expeditions and right back out to the edge of the screen. Even though each progressive screen offers "space pirates" in different configurations and with slightly different combat styles, this approach will achieve good results.

Another feature which distinguishes THRESHOLD from its predecessors in the genre is its hyperspace feature. Each Federation fighter (the player's ship) is allowed to go hyperspace on one occasion during the game. The fiction associated with this limitation is that the fuel consumption is too lavish to allow this more than once. By pressing the space bar, the player's ship goes hyperspace and the entire screen (except for his ship) slows down. This feature enables the player to get certain screens that are faster than others, under control. Another good feature is that each kind of "space pirate" featured on the screen uses a different combat strategy. Some of the pirates are very adept at laying down covering fire and then sending in their raiders on a strafing run. Others lay down an intricate bombing pattern on diagonal or vertical lines. Some are fairly slow in both motion and rate of fire, while others are fast in one or the other and a few, are fast in both. It is a unique game in that regard.

Sierra Vision's LUNAR LEEPER has another approach to strategic limitations. This game, similar is style to CHOPLIFTER, has several interesting limitations. First, one doesn't have to worry about ammo supply too much, because the object of the game is to rescue your comrades WITHOUT damaging any of the alien life forms (i.e. Lunar Leepers). You lose points on your rescue attempt when you have to kill one of the aliens. The second limitation is with regard to fuel. Each ship only has a limited supply and you must try to use it to its fullest advantage. Do you go for the rescues *close at hand* first, or those *farthest away*?

Another interesting factor in this game is the lack of brakes on your space ship. You must strictly use inertia in order to slow down and make your rescue. This is a challenging and frustrating game. Those who have mastered CHOPLIFTER will want to try this "pacifist" variant.

COMMODORE KEY TO THE UNKNOWN: Tired of playing arcade games on your Vic? Want a more strategic challenge? Try Parr Programming's Sports Strategy series.

FOOTBALL ADVERSARY, which I find to be as enjoyable as playing Avalon Hill's board game — FOOTBALL STRATEGY. Also, since COMPUTER FOOTBALL STRATEGY isn't available for the Vic-20, it's far better than attempting a solitaire version of FOOTBALL STRATEGY. The computer mixes its offensive and defensive plays in a logical, yet sometimes innovative fashion. One has to make sensible decisions consonant with sound football strategy in order to win. The computer will, otherwise, soon grind you down. It

took four games before I could win one, but once I discovered how to mix up my offensive plays, I began to gain ground consistently against the computer. Also, I had to learn what each defensive formation did best. Some of my early humiliations could have been solved by better documentation (all you get is a plastic card which lists your basic choices), but one can become competitive with the computer soon enough. With eight different defensive formations and 21 different offensive plays available, the game (though completely text oriented) is very playable. Since one must make a decision for every play, it is a very involving game. Also, the game offers a beautiful statistical summary at both the half and at the end of the game. At $14.95, this may be the best bargain available on the Vic-20 market for sports fans.

NEXT ISSUE, KEY TO THE UNKNOWN visits Prickly Pear Software, strength against the computer's team. ■

INDUSTRY NEWS (Cont.)

REACH FOR THE STARS, from Strategic Studies Group Pty. Ltd. of Sydney, Australia, has announced that the C-64 version of their game will be available by the end of September and will sell for $AUS45, or approximately $US40.

Sirius Software announced the release of four new games and the translation to new machines of several others. The new titles include GRUDS IN SPACE (Apple, C-64, and soon Atari), SQUISH'EM (C-64, Vic-20), CAPTURE THE FLAG (Atari, and soon Apple, C-64, and Vic-20), and BUZZARD BAIT (Apple, IBM PC). The translated games include BLADE OF BLACKPOOLE (C-64) and TYPE ATTACK (C-64).

October releases for SSI include FORTRESS (Apple and Atari, $34.95), which is a cross between Chess/Go/Othello; QUEEN OF HEARTS (Apple and Atari, $34.95), a pinball game; COMBAT LEADER (C-64 version), KNIGHTS OF THE DESERT (C-64 version); and PROFESSIONAL TOUR GOLF (Apple and Atari, $39.95), a golf game using real courses and historical players. COMPUTER BASEBALL on the IBM PC has been moved back to a late October release. CARRIER FORCE, which includes all four major Pacific carrier battles should be out by Thanksgiving (Apple and Atari, $59.95). WAR IN RUSSIA (a game of the Eastern Front WWII) should be ready for the Apple and Atari in Spring 1984.

The winner of PENTATHALON (held recently at MICROCON) was Russell Schmalenber of Anaheim CA. He just edged out Chris Many of Los Angeles. Russell received a $1000.00 check from SSI, sponsor of the PENTATHLON. A full report on Microcon will appear in our next issue.

SCORPION'S TALE (Cont.)

the game. Nor, for that matter, will running away (although you may have to do that if you're close to dying). It's a very tricky situation, so consider your remaining options carefully.

Sooner or later, probably later, you will make your way to the museum area. One of the rooms here is the Jewel Room, which contains some pretty items well-protected by a steel cage (make sure you read the plaque!). Of course, there is no way for you to open or break the cage, so you'll have to look around for another way of getting to the goodies. You might find something helpful in the Museum itself, which has three strange machines in it. Two of them are just decorations, but one can be very useful to you. Examine it "thoroughly". And remember: just because you find something in one room, that doesn't mean it has to stay there to work.

You're almost set for the end game, but there is still the Royal Pain, err, Puzzle (hehehe). This is the most tedious part of Zork III. It isn't a maze, but you probably wish it was. There is only one solution to it, and it will take you a while to work it out, so I'm just going to tell you what you have to do (you're gonna love it). The proper way to get out is to move the wall with the ladder on the west side to the hole where you first entered. Then, you can climb up the ladder and get out. You must exit this way with the book, or you won't be able to finish the game. It's a matter of moving the walls in the proper sequence, so take the time to map the Puzzle carefully, moving as few walls as possible. After that, advance planning, as well as trial and error, should get you out.

Now, at last, it's off to see the Dungeon Master. First, find a room with pictures. If there's nothing special about it when you get there, keep going out and coming back until there is. Then, of course, you have to do the right thing; I hope you picked up everything you came across in the game so far!

About now you should be through the secret door. You will find the sword helpful in the Beam Room. In fact, you should not take the sword with you beyond here, because there is a bug in the game (all versions). If you have the sword with you, Zork III will hang just before the end of the game. Of course, if you've done the right thing, you won't have the sword with you at that time. Now the mirror should be open. Inside it is rather bizarre room. Careful attention to the descriptions, and a little experimentation, should give you an idea of how the room works. When you leave, you may be confronted by the Guardians of Zork. This is the last obstacle before the end game; the solution to it is transparent. Cheers!

At last, you meet the Dungeon Master, who presents you with the final puzzle of the Zork trilogy. Keep in mind what he tells you; it's quite important. Also, notice that he follows you around, but there is one place he won't go. Finally, think about the robot in Zork II: the situation here is much the same.

That should be enough to see you through! Next issue, we'll take a look at Zork II. Meanwhile, it's time to toss off a few quick ones....

STARCROSS: Getting in is not hard. Count the number of bumps, and think about where you're from. As for the colored disks, they can help you in several ways. Try putting them on the floor, and work from there. WIZARD & PRINCESS: Getting off the island should be done in a vial manner; keep in mind the general direction you've been going all this time. SAVAGE ISLAND I: You know what the bear wants; what's in the ocean, and have you found a hot place yet?

Well, it's closing time again. Thanks for dropping by, and if you need help in between issues, you can reach me in the following ways: 1) Send a self-addressed, stamped envelope to Scorpia, 1319 Second Ave, Suite 540 N.Y., N.Y. 10021; 2) On the Source: ST1030; 3) On CompuServe, Go GAM-310 or EMAIL 70001,1263.

Happy adventuring! ■

COMBAT LEADER (Cont.)

reduce their rate of return fire. There is even a chance that a unit under fire may panic. A panicked unit will not fire, will probably halt, and may even run away.

CL has a very competitive artificial intelligence. Many designers achieve play balance in complex solitaire games by adjusting the odds in favor of the program, but not in this game. Your computer opponent in CL plays under the same rules you do. I have heard favorable comparisons between CL and the U.S. Army's *JANUS* tactical combat simulator at the Lawrence Livermore Laboratory.

Twentieth century small unit tactics is a very complex subject, and this program realistically portrays the uncertainties and hazards faced by a modern mechanized company commander. You will probably get butchered in your first few games, but this is a safe and painless way to explore new possibilities. The fastest way to improve your skill is to play a few games as an armor platoon subcommander with the program as your company commander, and carefully observe how it handles different tactical problems.

The main idea is to shoot a greater *volume* of fire at enemy units than you receive. Volume of fire is determined by the number of guns firing multiplied by their rate of fire. Stationary units have a higher rate of fire than moving units. Terrain also has crucial effects on line of sight, line of fire, protective cover and movement capability.

Any public library should have several useful military history books on small unit tactics. I especially recommend General George Patton's *War As I Knew It* (Appendix D) and General Marshall's *Men Against Fire.* For German tactics from 1939 to 1945, consult the *German Army Handbook* by Davies. Don't be afraid to improvise, but remember. . . the real time pace of the game forces you to act quickly. As General Patton once said, "A good plan executed immediately is better than the perfect plan executed too late."

Good luck, and stay low! ■

PARIS IN DANGER (Cont.)

behind the enemy infantry in order to make rear or flank charges to hopefully scatter them. When shooting your artillery, always aim first at nearby enemy cavalry if possible.

Bloodied infantry units with low morale should be immediately pulled back from the line and put into square formations to steady them against cavalry rushes. You should try to maintain a small reserve of high morale infantry units in column formations directly behind your main line which can be used to rapidly plug any holes in your line, to exploit any breaches in the enemy line, or to hopefully block any enemy cavalry charges directed at the rear of your line.

When these reserve divisions make contact with the enemy, they should deploy from column to line formation in order to increase fire power. You should always direct your musket fire into the square directly in front of your line to maximize firepower, not to the side. Try to concentrate your firepower on the enemy unit with the lowest morale. If a unit routs, very few survivors will subsequently reappear on the strategic map. Therefore, you will probably inflict more casualties by scattering one panicky unit than by shooting up several steady ones.

The three divisions of the famous Old Guard Corps (12,000 men) are an elite corps of French veterans whose morale level will always commence at 100 percent on the tactical map regardless of how many casualties they suffered in previous combats. This high morale makes them excellent for use as shock troops. In the twilight at Waterloo, after the rest of the French army had quit the field, two squares of the hopelessly outnumbered Guard were literally faithful to their brave regimental motto: "The Guard dies, but never surrenders!" The French player should not waste the Old Guard by placing it in the main line exposed to enemy artillery. These crack troops should be placed in reserve in column formation behind the main line, and hopefully unleashed at the decisive moment to strike a hammer blow at a demoralized section of the Allied line.

The random tactical map display which has *bridges* is a death trap for whichever side attempts a bridge crossing. If this map appears on the tactical display, do not try to cross, but converge into a "U" formation to defend your own bridgeheads, and hope the enemy tries to cross over into the killing ground.

If you are interested in learning more about Napoleonic military history, any public library should have several books on the subject.

Good luck, and *Vive L'Empereur.*

There were several major bugs in the first production run of this game which have been corrected. To check your copy, try to march any corps off the northern border of the strategic map. If the program crashes, you have a defective copy.

ED NOTE — *A couple of frustrating aspects of Paris in Danger are: 1) strategic orders are repeated each turn and; 2) the tactical formation known as the column (a favorite of the French) is not given adequate treatment in the game.*

With strategic orders repeating themselves, your unit will continue to march on even after reaching the intended destination. We would like to have seen orders start from "scratch" each turn. Mike Cullum, Director of Software at Avalon Hill Microcomputer Games, indicates that playtesters were split in their opinion on repeating orders, some wanted the repeating orders which meant that units moving long distances need not be reordered each turn; and also forced players to take the time to check each unit each turn. Other playtesters supported our view that starting from scratch each turn is better.

Cullum admitted that column formation was not given adequate treatment in PID citing lack of memory space as a reason. He said that future releases incorporating the PID tactical game system will have improved treatment of columns. Waterloo and Leipzig games using the PID tactical system are planned. ■

ATARI ARENA (Cont.)

and graphics are excellent, and some of the graphics elements and the speed of the game can be varied.

Games like WORMS? and PINBALL CONSTRUCTION SET address directly the nature of the computer. Not simply computer versions of some type of board games which perhaps provides an opponent, but classes of games impossible without a computer. These two join the small list of games like COSMIC BALANCE from SSI and the-as-yet-unavailable-on-the-Atari ROBOTWAR (hint, hint) from MUSE as true "Computer Gaming". May their tribe increase.

In all of these Electronic Arts games, every effort seems to have been made to put as much graphics and sound into the game as possible. The controller input for each game is easy and obvious. The games are all good to excellent. If these standards are maintained, may their tribe increase also. ■

SILICON (Cont.)

(1) Set *H* = the goal hex and clear out OPEN.
(2) Put *H* at the front of OPEN.
(3) If *H* = the starting hex, then quit.
(4) Set *n* = TRACE[*H*].
(5) Set *H* = INVADJ (*n*).
(6) Go to (2).

When this process ends, OPEN will contain a list of all of the hexes in the path from the starting hex to the goal hex, inclusive. *Figure 5* shows the path found by this means — an optimal path (7 hexes). In fact, this algorithm will always find an optimal (shortest) path, if a path exists at all.

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Figure 5

VARIATIONS

I've given a version adapted to hex maps. However, it works very well for rectangular grids, especially where the range for ADJ is *n* = 1..8. In fact, I recently played a computer game involving personal combat on a grid that could benefit from this. In it, computer-controlled individuals moving toward a goal frequently got trapped in rooms and couldn't move out. Appropriate use of this algorithm could easily get them out of those rooms.

Another variation involves different terrain types, where movement into such hexes is possible but costs more in movement points. We'll call that value ENTER(*H*) for any hex *H*. An optimal path is then defined in terms of total movement points required, rather than actual number of hexes moved through. To accommodate this TRACE must now hold an additional value in each location: the cost to reach that location. TRACE[start].COST is set to 0. When a hex *H* is expanded, TRACE[ADJ (*n*)].COST = TRACE [*H*].COST + *ENTER(ADJ (n))*. There are a few other modification, too. Instead of using the first hex in OPEN for *H*, *H* is set to the hex in OPEN having the lowest cost. Also, if ADJ(*n*) has already been expanded from another hex (i.e., if TRACE[ADJ (*n*)] = 1..6), then we need to check if TRACE[ADJ(*n*)]. COST TRACE [*H*].COST + ENTER(ADJ(*n*)). If so, then we've found a better path to ADJ(*n*). In such a case, we need to set TRACE[ADJ(*n*)].COST = TRACE [*H*].COST + ENTER(ADJ(*n*)), set TRACE[ADJ(*n*)].DIRECTION = *n*, and place ADJ(*n*) on OPEN (if it's no still there).

One last variation: instead of a single starting hex and a single goal hex, we can have several starting hexes and/or several goal hexes. In step (0) above, we put all of the starting hexes onto OPEN. In step(7), we check if *H* is any one of the goal hexes. We have then found the shortest path between the two sets of hexes. If we want to, we can remove one or both of the linked hexes from their respective sets and start the whole process over again.

CONFESSIONS

Having given you this marvelous method, I now have a confession to make: this algorithm involves no heuristic information. Instead, it's known as a "blind search" or "uninformed search". Its prime benefit is that you are guaranteed to find the optimal path from start to goal. Its main drawback is that it tends to eat up a lost of time and memory, especially for large maps.

Next issue, we're going to modify this algorithm into an *ordered-search* method which will use heuristic information, to see if we can't improve on its speed while maintaining its effectiveness. See you then. ■

REFERENCES

Nilsson, Nils J. (1971): *Problem Solving Methods in Artificial Intelligence,* McGraw-Hill Book Company, New York, 1971.

———————— (1980): *Principles of Artificial Intelligence,* Tioga Publishing Company, Palo Alto, 1980.

TAC (Cont.)

Infantry movement uses the same "control yoke" but with one difference. Each press of the key moves the infantry one movement point in the indicated direction, thus allowing you to position the infantry exactly where you want them. Why don't the AFV's have this incremental movement? I don't know, but in this writer's opinion it would have been much less frustrating.

Both infantry and field guns have their own built in transportation and can be in either a loaded or unloaded state — referring, of course, to whether the unit is in fighting mode or transport mode. When loaded, the transport and the fighting unit are indivisable. If hit and destroyed, they both go together. When unloaded, the unit can survive while watching its transport be destroyed. If this occurs, your infantry will still have some movement ability, but the field gun will only be able to pivot in place.

Combat can take one of five forms. Most non-infantry units can engage in *indirect fire*, AFV's can perform *overrun* against dismounted infantry or field guns, infantry can *close assault* AFV's, infantry can *engage in firefights* with other infantry, and of course AFV's infantry, and field guns can engage in *direct fire* against all types of targets. The graphics in the combat resolution phase are quite acceptable. The firing unit shows a nice muzzle blast and then, if a hit occurs, the target flashes red while you are informed as to where the hit occurred and if you have destroyed the target. There is one unfortunate bit of programming which slipped into the game. When an infantry squad is the target and you score a hit, you set the disconcerting message that the unit was hit, say, on the upper left turret, or perhaps the lower right hull. This is forgiveable, but does slightly detract from the overall effect as your average infantry squad has neither a turret nor a hull.

Five different scenarios are offered for play. Number one, the *meeting engagement* starts team one along the left edge of sector *A-1*, and team two along the right edge of sector *E-3*. These units always start in the same positions, so early use of indirect fire against the enemy's known starting position can be very effective. Scenario two is a *static defense*, with team two setting up in row *D* or *E* with a minefield somewhere in row *C,D*, or *E*. Only infantry units can clear minefields for your AFV's to move through safely, so this one can be a real challenge. In addition, team two starts in improved positions, so they are harder to see and hit.

Scenario three is the same as two, except that team one has to exit from the lower right corner of sector *E-3*, and that there is no minefield. Scenario four, *rear guard*, is a continuously renewing stream of *JS II* Russian tanks attacking from the south. Each time you destroy a Russian tank, a new one appears at the south map edge. How many can you wipe out before they get you?

In Scenario five *(a stalemate situation)*, both teams begin in improved positions with a minefield between them. The goal is to break through and kill the opponent.

The AFV's of each nationality are rated according to *armor thickness, sun range and effectiveness, fuel tank location, speed*, and many other factors. The infantry squads and field guns are all generic, with each unit possessing unlimited ammunition and fuel. No detailed information is given, so unless you have the statistical data available elsewhere in your library (I did) you'll have to fight your way to knowledge. You will soon discover, for example, that there is no way that an American *Stuart* tank can knock out a German *Tiger* or Russian *JS II* from the front. You can hit'em all day long, and you just won't do any damage.

My overall reaction to TAC is positive. The graphics and sound effects are good. A fact which was mentioned in the rules but not highlighted, is that the game does support Sweet Micro Systems, **MOCKINGBOARD**, and when doing so has excellent sound effects — enough to make you want to duck the incoming rounds.

One rather strong objection which I had was that you cannot scroll between map sectors. This means that if my *Pershing* is at the extreme left edge of one sector, and your *Tiger* is at the right edge of the adjoining board, we could be almost adjacent and never be seen on the same tactical screen at the same time. I'm sure that adding scrolling to the map display would have been quite a job, but it most certainly would have made play considerably smoother. Another annoyance was that the global (or strategic) map is not accessable at all times, but only at specific spots in the sequence of play; and that it is in black and white only.

In conclusion, I found TAC to be an enjoyable and relatively accurate representation of individual armored combat, and one which I will continue to play, on occasion, for quite a while. On the other hand, with a little more development, perhaps greater input from the folks at Avalon Hill or more suggestions from playtesters, this one could have been a true All Star. When I think of what this could have been with ravines, creeks, roads, and clearly defined forests; with a more incremental system of movement and a scrolling map . . .

ED. NOTE — *Mike Cullum, Director of Software at Avalon Hill Microcomputer Games, indicates that the problem of tank movement as explained in David Long's review is a matter of "practice". After a period of learning, players can solve the problems of movement. He said that one reason for including the fast action movement was to put the player in a "live" stress producing situation in which mistakes are made by beginners and are avoided by veterans. Cullum also told us that TAC is the first in a series of games using the TAC system. Tactical armor, both WWII and modern, as well as a divisional level Civil War game are subjects being explored. Future releases will have more emphasis on infantry, better movement systems, and maps which center on units. Cullum says that comments from players of their games are always encouraged.* ■

TELE-GAMING (Cont.)

Many BBSs provide software libraries for downloading, and their catalogues often contain good public domain games for various brands of computers. "Downloading" involves the transmission of a program directly from the BBS' computer to your machine. You will have to read a particular BBS' file transfer instructions in order to determine whether you can utilize protocol transfer (with error-checking) or standard downloading (no error-checking). Among the systems I mentioned above, *Commnet-80*, *Disk Byters*, and *Drucom* also have games in their download areas. Here are descriptions of nine additional BBSs which offer game programs:

A.R.C.A.D.E. (Sterling Heights, MI) — (313) 978-8087: Primarily an Atari system, the A.R.C.A.D.E. game files include "Civil War," "Microids," "Live Wire," "Island Jumper," and "Horse Race." The menu is updated periodically.

Coin Games Net (Covina, CA) — (213) 336-5535: This system is run by a company that distributes coin-operated video games. There is a good selection of games for the Apple, Pet, and TRS-80 computers, including "Monopoly," "Nevada Craps," "Caribbean Cruise," "Deep Space," and "Invaders."

ARK-NET PBBS (Little Rock, AR) — (501) 372-0576: ARK-NET is primarily a TRS-80 system. It is online after midnight on weeknights, with extended weekend hours. Several games are available, including "Star Search," "Centipede," and "Rubik's Cube."

Telephone Software Connection (Torrance, CA) — (213) 516-9432: T.S.C. is run by Ed Magnin, who offers nine games. "Go-Moku," "Chess Connection," "Tele-Gammon," "Wall Street Journey," "Keno Master," and "Computer Concentration" are popular favorites. All games are for the Apple, and you are billed to your credit card for each download.

Ed Gelb's Data Base (Wayne, NJ) — (201) 694-7425: The software library here is very extensive, and contains many games for the Apple, TRS-80, CoCo, and Heath/Zenith machines.

RCP/M System (Chicago, IL) — (312) 789-0499: As with many of the remote CP/M BBSs, this system offers a huge library of software, including numerous game programs. It is on-line twenty-four hours a day, and is often busy. Keep trying!

DAJAX Software (Augusta, GA) — (404) 736-3529: This is a fee system like the *Telephone Software Connection*. You will have to obtain an account number and a verified password before you can access DAJAX's extensive catalogue.

Miami's Big Apple (Miami, FL) — (305) 948-8000: With that name, you won't be surprised that this is an Apple system. The software catalogue is very good; however, you must pay a membership fee in order to download programs.

Los Angeles RCP/M BBS (Los Angeles, CA) — (213) 296-5927: Another CP/M- based system with a large library, including many games. The line is frequently busy, so try calling late at night.

If none of the systems I've mentioned is local to you, you can find the names and modem numbers of other gaming BBSs by asking experienced users in your area or by checking the "Other Systems" selection on one of the boards described above. You can also call the *People's Message System* in Santee, California (619) 561-7277 for a list of BBSs throughout the country and abroad.

A final word: As you use different BBSs, reciprocate the favor by joining discussions on the message board or uploading some of the game programs you've collected. Most systems are free, and the SysOps appreciate caller participation.

In my next column, I'll be discussing *multi-player* tele-gaming — those systems which allow many users to play exciting online games... simultaneously. ■

NAME GAME (Cont.)

Reference Guide. Both books share an amazing facility for "explaining" things in such way that you can't understand what they're talking about until you've figured it out for yourself. The text contradicts itself left and right. The sample programs are full of typos, bugs, and incorrect annotations.

Using the disk directory is clumsy and utterly unintuitive. You cannot run a program without first loading it; an outoboot is impossible. You cannot "SAVE" an updated version of a program over an old one. (A separate command or a change of names is required.) If you try — or if you do any of the hundred other things it doesn't like — the drive will flash a red light (or, worse, go off into limbo and never return); but nowhere, ever, will you be told what you did wrong. Most programming or operating errors are not identified even with a number.

The temperamental drive is numbingly slow. It takes almost *half an hour* to back-up a disk! Worse yet, it has a fatally unbalanced flywheel; as of mid-August, Commodore is quietly *recalling* the 1541 from large retailers *without notifying owners* or the public of the flaw.

The real tragedy is that the people who are buying the Commodore 64 (in droves) are novices — the people least suited to the machine. Only two reactions are likely: either they will think themselves stupid (because they can't understand what's going on and can't avoid mysterious mistakes), or they will think all computers are horrible and throw the whole idea out the window along with their 64.

Do yourself, your friends, and the whole industry a big favor: steer people toward something else. Anything else. ■

Ed. note — *As our regular readers know by now, Jon Freeman writes on controversial subjects. Your responses are always welcome.*

Reader Input Device

There were 234 RIDs turned in by press time for this issue. The breakdown of users was: Apple (47%), Atari (43%); C-64 (4%); others (3%). As they have done for several issues, the Atari readers gain ground on the Apple readers. There are two reasons for this trend. First, the Atari market has, of course, outgrown the Apple market in terms of machines in the field. And, second, games reported on in CGW are more uniformly available on both machines. It will be interesting to see what happens with the C-64 readership now that they have their own column and the long awaited onslaught of games is starting to hit the marketplace.

One of the questions we asked in RID #9 was "what is your favorite catagory of computer game?". The breakdown was: Strategy (62%), Adventure (27%), and Arcade (11%).

Newly rated games and updated game ratings are listed with **bold type** in the table on page 52.

GAME RATING

The table on page 52 includes games evaluated by our readers. For a game to be included in this listing it must first have been offered for rating in our regular RID rating system. Games offered for evaluation are those covered in the magazine and/or those having a good sales record during the time of evaluation. Once offered for evaluation, the game must have been evaluated by a sufficient number of readers to be included in the results. Any game not evaluated by at least 10% of the respondents was not included in the results.

Games were rated on a scale of 1 (terrible) to 9 (outstanding). Respondents were asked to consider such things as PRESENTATION (graphics, sound, packaging, documentation); GAME DESIGN (design, playability, interesting?); LIFE (does the game wear well?)

RID #10 (Use card provided)

Use boxes #1, #2 and #3 to record reader survey answers from INSIDE THE INDUSTRY. See page 3 for instructions.

On this page a number of games and articles are listed for evaluation. Please take time to evaluate these games and articles. Use the guidelines above for game evaluation. Leave blank any game which you have not played enough to have formed an opinion.

Please rate articles on the basis of the article itself, not your opinion of the game being reviewed. Enter a zero for any article that does not interest you.

GAMES

1. Part I (p.3)
2. Part II (p.3)
3. Part III (p.3)
4. Wizardry (Sir-tech)
5. Ultima II (Sierra On-Line)
6. Archon (Electronic Arts)
7. Knight of Diamonds (Sir-tech)
8. Suspended (Infocom)
9. Hi-Res Golf 2 (Avant-Garde)
10. Computer Ambush (SSI)
11. Guadalcanal Campaign (SSI)
12. Galactic Adventures (SSI)
13. Telegard (Avalon Hill)
14. North Atlantic '86 (SSI)
15. Battle of Shiloh (SSI)
16. Axis Assassin (Elec. Arts)
17. M.U.L.E. (Elec. Arts)
18. Murder on the Zinderneuf (Elec. Arts)
19. Worms (Elec. Arts)
20. Hard Hat Mack (Elec. Arts)
21. Operation Whirlwind (Broderbund).
22. Combat Leader (SSI)
23. Cosmic Balance II (SSI)
24. Lode Runner (Broderbund)
25. Knights of the Desert (SSI)
26. TAC (Avalon Hill)
27. Paris In Danger (Avalon Hill)
28. Delta Squadron (Nexa)
29. Witness (Infocom)
30. Planetfall (Infocom)
31. The Quest (Penguin)
32. Blue Max (Synapse)
33. Geopolitique 1990 (SSI)
34. Ringside Seat (SSI)
35. Parthian Kings (Avalon Hill)

ARTICLES

36. EA: Trip Hawkins Dream
37. Combat Leader Review
38. Archon Review
39. Learning Game
40. TAC Review
41. Knights of Desert Strategy
42. Scorpion's Tale
43. Board Wargamer
44. Commodore Key
45. Paris In Danger Review

MISCELLANEOUS

A. Describe a computer game that you wish someone would make but hasn't yet.
B. Do you have any of the following: 1) disk drive; 2) printer; 3) modem.
C. Other comments.

Reader Input Device

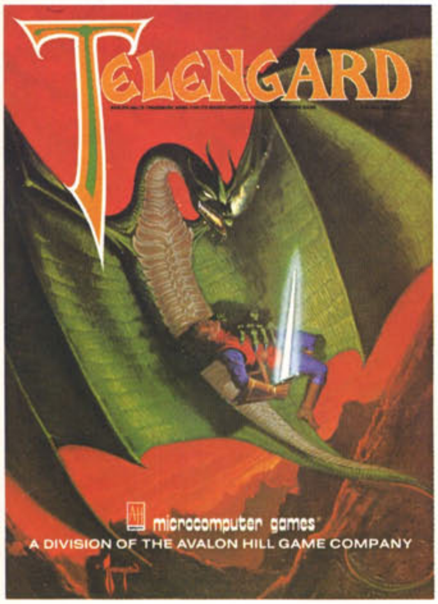
R.I.D. was prepared with the help of SPEED STAT by SoftCorp International, Westerville, OH 800-543-1350

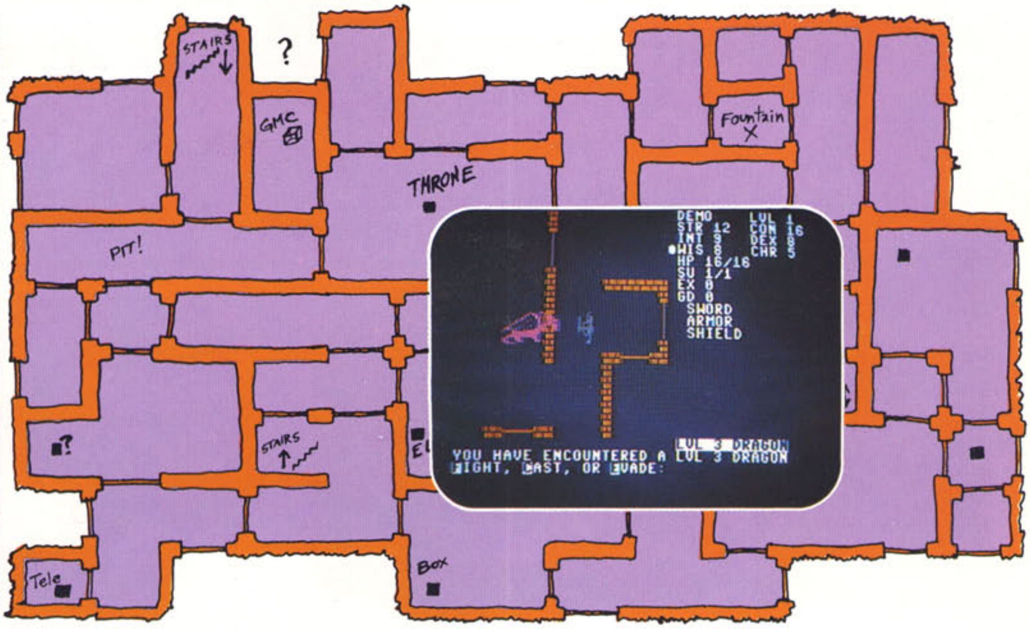
See page 51 for details on the Reader Input Device

Game Ratings

8.20	**Wizardry**	**Sir-tech**	**Apple**
7.77	**Ultima II**	**Sierra On-Line**	**Apple, Atari**
7.75	**Archon**	**Electronic Arts**	**Atari**
7.65	**Knight of Diamonds**	**Sir-tech**	**Apple**
7.59	**Suspended**	**Infocom**	**Many**
7.45	**Hi-Res Golf 2**	**Avant-Garde**	**Apple**
7.44	**Computer Ambush**	**SSI**	**Apple**
7.40	**Chess 7.0**	**Odesta**	**Many**
7.36	**Guadalcanal Campaign**	**SSI**	**Apple**
7.28	**Galactic Adventures**	**SSI**	**Apple**
7.25	Pinball Construction	Electronic Arts	Apple, Atari
7.25	Survivor	Synapse	Atari
7.24	**Miner 2049er**	**Big5/Microfun**	**Apple, Atari**
7.22	Jumpman	Epyx	Atari
7.20	**Bomb Alley**	**SSI**	**Apple**
7.20	**Mule**	**Electronic Arts**	**Atari**
7.20	Zork Series	Infocom	Many
7.05	The Cosmic Balance	SSI	Apple, Atari
7.03	Eastern Front	APX	Atari
7.03	Choplifter!	Broderbund	Apple, Atari
7.00	Computer Baseball	SSI	Apple, C-64
6.98	Southern Command	SSI	Apple
6.97	Olympic Decathlon	Microsoft	Apple
6.94	Shattered Alliance	SSI	Apple, Atari
6.93	Galactic Gladiators	SSI	Apple
6.93	Legionnaire	Avalon Hill	Atari
6.93	Star Blazer	Broderbund	Apple
6.92	Starcross	Infocom	Many
6.91	Castle Wolfenstein	Muse	Apple
6.91	Deadline	Infocom	Many
6.91	The Warp Factor	SSI	Apple, IBM
6.89	Necromancer	Synapse	Atari
6.88	Cartels & Cutthroats	SSI	Apple
6.87	Crisis Mountain	Synergistic	Apple
6.86	Pursuit of Graf Spee	SSI	Apple
6.84	Battle for Normandy	SSI	Apple, Atari
6.83	**Knights of the Desert**	**SSI**	**Apple, Atari**
6.82	Cytron Masters	SSI	Apple, Atari
6.82	Germany 1985	SSI	Apple
6.81	**Championship Golf**	**Hayden**	**Apple**
6.76	Rendezvous	Edu-Ware	Apple
6.76	Shamus	Synapse	Atari
6.75	President Elect	SSI	Apple
6.73	Star Maze	Sir-tech	Apple
6.71	Dnieper River Line	Avalon Hill	Many
6.67	Computer Gin Rummy	Datamost	Apple
6.66	Astro Chase	First Star	Atari
6.66	Napoleon's Campaigns	SSI	Apple
6.65	Escape from Rungistan	Sirius	Apple
6.60	Ali Baba/40 Thieves	Quality	Apple, Atari
6.56	David's Midnight Magic	Broderbund	Many
6.54	Ultima I	Cal Pacific	Apple
6.50	Sherwood Forest	Phoenix	Apple
6.47	Epidemic	SSI	Apple, IBM
6.40	Apventure to Atlantis	Synergistic	Apple
6.40	Tigers in the Snow	SSI	Many
6.39	Galactic Attack	Sir-tech	Apple
6.28	Temple of Apshai	Epyx	Many
6.27	Mask of Sun	Ultra Soft	Apple
6.26	Swashbuckler	Datamost	Apple
6.21	Crush, Crumble Chomp	Epyx	Many
6.20	Zaxxon	Datasoft	Many
6.17	Frogger	Sierra On-Line	Apple, Atari
6.16	A2-PB1 Pinball	SubLogic	Apple
6.15	Cannonball Blitz	Sierra On-Line	Apple
6.11	A2-FS1 Flight Simulator	SubLogic	Apple,TRS-80
6.07	Old Ironsides	Xerox	Apple
6.04	Robotwar	Muse	Apple
6.02	Way Out	Sirius	Apple, Atari
6.00	Empire of the Overmind	Avalon Hill	Many
6.00	Spy's Demise	Penguin	Apple, Atari
5.99	Swordthrust Series	CE Software	Apple
5.92	Time Zone	Sierra On-Line	Apple
5.94	Labyrinth	Broderbund	Apple
5.87	Marauder	Sierra On-Line	Apple, Atari
5.84	Close Assault	Avalon Hill	Many
5.79	A.E.	Broderbund	Apple
5.79	Aztec	Datamost	Apple
5.77	Snack Attack	Datamost	Apple
5.77	Torpedo Fire	SSI	Apple
5.76	**Tactical Armor Command**	**Avalon Hill**	**Apple**
5.76	The Arcade Machine	Broderbund	Apple
5.70	Serpentine	Broderbund	Apple, Atari
5.68	Andromeda Conquest	Avalon Hill	Many
5.67	Blade of Blackpoole	Sirius	Many
5.67	Missing Ring	Datamost	Apple
5.65	Invasion Orion	Epyx	Many
5.56	Guns of Fort Defiance	Avalon Hill	Many
5.14	**Golf Challenge**	**Sierra On-Line**	**Atari**
5.11	Conglomerates Collide	Rockroy	Apple
5.03	Galaxy	Avalon Hill	Many
4.91	Major League Baseball	Avalon Hill	Many
4.88	Wizplus	Datamost	Apple
4.83	Tanktics	Avalon Hill	Many
4.78	**Clipper**	**PDI**	**Atari**
4.75	Pie-Man	Penguin	Apple
4.65	**Caverns of Freitag**	**Muse**	**Apple**
4.63	Twerps	Sirius	Apple, Atari
4.53	**Kid Grid**	**Tronix**	**Atari**
4.22	**Fore!**	**Epyx**	**Apple**

Be Amazed!





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T.G.I.F.: Thank Goodness It's Friday! Avalon Hill's new party game for one to four players recreating an often-not-so-typical week in the lives of the working class. Half the fun is just making it from Monday to Sunday. Commodore 64, Atari Home Computers (40K) cassette for a meager $20.00. Atari diskette (48K) for $25.00.

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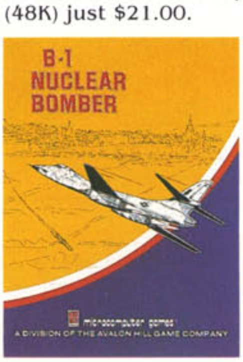
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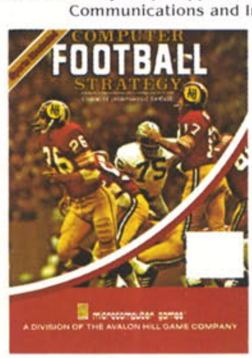
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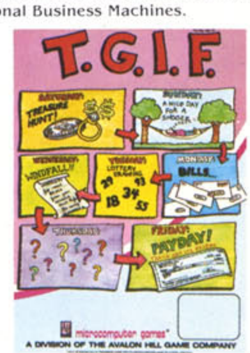
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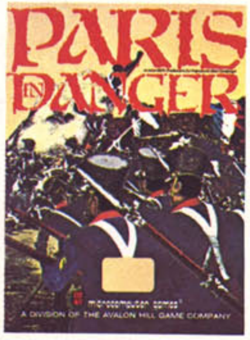




Wargames

Not the movie . . . . the real things!

The Avalon Hill Game Company, America's premiere strategy game maker, has combined their years of experience designing military strategy board games with the latest in artificial intelligence for home computers. The resulting computer games are designed to assist you, the player, with combat results, lines of fire and double hidden movement in two player games and provide a worthy opponent in solitaire games.



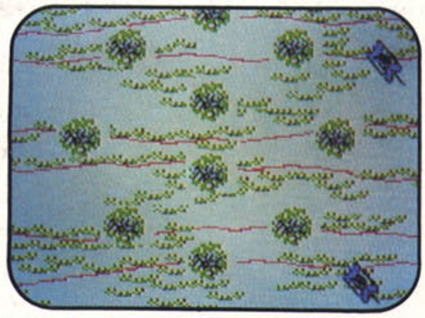
Strategic Level



Paris in Danger: A simulation of Napoleon's 1814 campaign in France. One of Napoleon's finest, against the invading Allied Armies. (Austrian, Prussian and Russian). You can choose to take the role as Napoleon, Commander Schwarzenberg, or play both sides to re-create the actual campaign. PARIS IN DANGER is unique, in that it allows the players to compete on both the strategic and tactical levels, on a full-color scrolling map of France and surrounding countries.

For all Atari Home Computers, 48K Disk: $35.00

Tactical Level





T.A.C.: Tactical Armor Command during World War II. You control individual tanks, anti-tank guns, and infantry squads. For one or two players featuring outstanding Hi-Resolution graphics, enhanced sound, and stimulating challenge. Five different scenarios are available from Meeting Engagement, Rear Guard, and Static Defense, to Breakout and Stalemate. The players control up to eight vehicles, guns and squads simultaneously, utilizing the equipment of either the German, British, Russian or American forces.

Atari & Apple Disks (48K): $40.00





LEGIONNAIRE (by Chris Crawford):

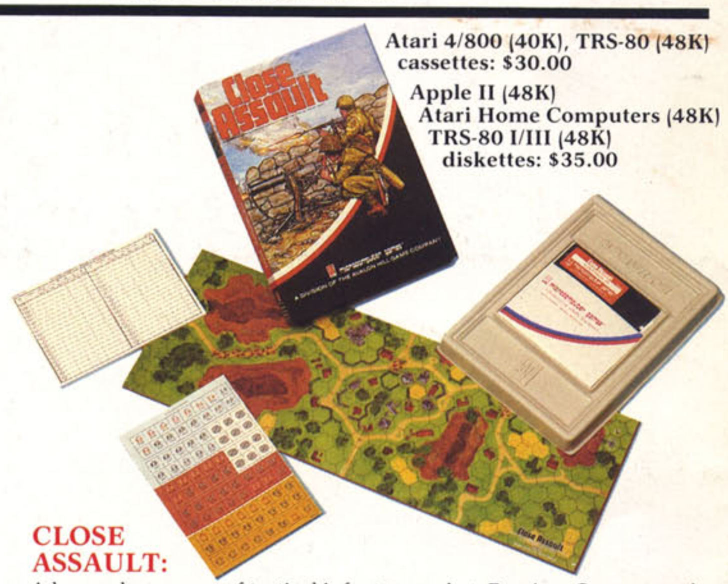
Consumer Electronics Showcase Award for Innovative Programming
Wargame of the Year, VIDEO GAMES PLAYER Magazine
Nominee for Wargame of the Year, Game Manufacturers' Association

"On a scale of 1 to 100, this is a 95" SOFTLINE Magazine, March '83.
"Legionnaire is a wonderful game that combines the graphics and movement of arcade games with the depth of strategy games" BYTE, March '83.
"An entertaining, attractive game in which thinking is more important than fast reflexes" COMPUTE!, July, '83.

For all Atari Home Computers, 16K Cassette: $35.00
32K Diskette for Atari Home Computers: $40.00
Apple II Computer Diskette (48K): $40.00

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Atari 4/800 (40K), TRS-80 (48K) cassettes: $30.00
Apple II (48K)
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